

BIGFORK **North** **South**

Instructions and Project History

• This Environmental Assessment began in 1999. Ideas were gathered from the public on what should be done to the highway to help it work better. Three public workshops and a visioning workshop were held, surveys were conducted as well as meetings with individual landowners. An advisory committee made up of members of the community was organized and has worked closely with the Montana Department of Transportation and their consultant throughout the process of finding and developing a solution.

• The solution that is being recommended is called the Preferred Alternative.

• **For a written description, turn to the Preferred Alternative tab.**

• **For an aerial photo and map, turn to the Map tab.**

• Want to know all of the details of how the Preferred Alternative was identified? Feel free to read the entire document.

• **What do you think about the Preferred Alternative? Please give us any thoughts or comments.** (Comment forms are attached.)

• A public hearing will be held July 14, 2004 at the Bigfork Middle School from 4-8 p.m. with a formal presentation at 6:30 p.m.

Environmental Assessment & Programmatic Section 4(f) Evaluation

For

Bigfork North & South

STPP 52-1(18) 27
Control No. 4035

Prepared for:
Montana Department of Transportation



June 2004

Environmental Assessment
&
Programmatic Section 4(f) Evaluation

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This document is prepared in conformance with the Montana Environmental Policy Act (MEPA) requirements and contains the information required for an Environmental Assessment under the provisions of ARM 18.2.237(2) and 18.2.239. It is also prepared in conformance with the National Environmental Policy Act (NEPA) requirements for an Environmental Assessment under 23 CFR 771.119.

Submitted Pursuant to 42 USC 4332(2)(c) 49 U.S.C. 303
& Sections 2-3-104, 75-1-201 M.C.A.

By the
U.S. Department of Transportation
Federal Highway Administration
And the
Montana Department of Transportation

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Environmental Services

Date: _____

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Date: _____

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Table of Contents

Executive Summary	ES-1
Introduction	ES-1
Summary of Impacts	ES-1
Major Issues Raised During the Stakeholder Process	ES-5
Summary of Mitigative Measures	ES-7
Permits	ES-9
Positive Results of the Proposed Action	ES-9

Chapter One:

Purpose & Need.....	1-1
1.1 Study Area Description	1-1
1.2 Capacity Analysis	1-6
1.2.1 Rural LOS Measurements	1-6
1.2.2 Urban LOS Measurements	1-8
1.3 Existing Traffic Volume & Vehicle Characteristics	1-10
1.3.1 Traffic Volume & Vehicle Characteristics	1-10
1.3.2 Existing LOS Analysis	1-11
1.4 Traffic Projections	1-11
1.4.1 Projected AADT Volumes	1-11
1.4.2 Peak Hour Projections	1-11
1.4.3 Future No-Action LOS Result	1-14
1.5 Safety/Crash Data	1-14
1.6 Local Access/Circulation	1-14
1.7 Roadway Deficiencies	1-16
1.7.1 Inadequate Shoulder Width	1-16
1.7.2 Clear Zone	1-16
1.7.3 Sharp Curves	1-16
1.7.4 Passing Accommodations	1-16
1.7.5 Local Access Character	1-16
1.7.6 Non-Motorized Facilities	1-17
1.7.7 School Bus Stops	1-17
1.7.8 Parking	1-17
1.7.9 Operating Speed	1-17
1.7.10 Mail Delivery	1-17
1.8 Swan River Bridge Deficiencies	1-18
1.9 Segment Road Description & Needs	1-19
1.9.1 Segment 1 (RP 26.36 to RP 27.1), Woods Bay through Woods Bay Hill	1-19
1.9.2 Segment 2 (RP 27.1 to RP 30.7), Woods Bay Hill to Highway 209	1-19
1.9.3 Segment 3 (RP 30.7 to RP 31.1), Highway 209 to Grand Avenue	1-24
1.9.4 Segment 4 (RP 31.1 to RP 32.5), Grand Avenue to Ice Box Canyon	1-24
1.9.5 Segment 5 (RP 32.5 to RP 33.27), Ice Box Canyon to End of Project	1-29
1.10 Relationship to Transportation Planning	1-32
1.10.1 Flathead Lake East Shore/West Shore Corridor Study (1993)	1-32

1.10.2 Preliminary Field Review Report (1999)	1-32
1.10.3 MDT Signing Project (2000)	1-32
1.11 Economic Development	1-32
1.12 Summary of Purpose & Need	1-33

Chapter Two:

Alternatives Considered	2-1
2.1 Alternative Development	2-1
2.2 Design Options Considered	2-1
2.2.1 Segment 1, Woods Bay through Woods Bay Hill	2-2
2.2.2 Segment 2, Woods Bay Hill to SH-209	2-2
2.2.3 Segment 3, SH-209 to Grand Avenue	2-7
2.2.4 Segment 4, Grand Avenue to Ice Box Canyon	2-7
2.2.5 Segment 5, Ice Box Canyon to End of Project	2-12
2.3 Intersection Alternatives	2-15
2.3.1 SH-209 & MT-35	2-15
2.3.2 Bridge Street, Sunset Drive & MT-35	2-15
2.3.3 Grand Avenue, Holt Drive & MT-35	2-15
2.3.4 Lake Hills Drive & MT-35	2-16
2.4 Alternatives Advanced	2-18
2.4.1 No-Action Alternative	2-18
2.4.2 Preferred Alternative	2-18
2.5 The Preferred Alternative & Context Sensitive Design	2-25

Chapter Three:

Affected Environment, Impacts & Mitigation Measures	3-1
3.1 Land Use Zoning & Land Use Planning	3-1
3.1.1 Affected Environment	3-1
3.1.2 Zoning	3-1
3.1.3 Land Use Plans	3-1
3.1.4 Land Use Impacts	3-6
3.1.5 Mitigation	3-6
3.2 Prime & Unique Farmlands	3-7
3.2.1 Affected Environment	3-7
3.2.2 Farmland Impacts	3-7
3.2.3 Mitigation	3-7
3.3 Social	3-7
3.3.1 Affected Environment	3-7
3.3.2 Social Impacts	3-11
3.3.3 Mitigation	3-11
3.3.4 Environmental Justice & Title VI	3-11
3.4 Economic	3-13
3.4.1 Affected Environment	3-13
3.4.2 Economic Impacts	3-14
3.4.3 Mitigation	3-14
3.5 Non-Motorized Travel (Pedestrian & Bicycle)	3-14
3.5.1 Affected Environment	3-14
3.5.2 Non-Motorized Travel Impacts	3-16

3.5.3 Mitigation	3-16
3.6 Right-of-Way & Relocation.....	3-16
3.6.1 Affected Environment	3-16
3.6.2 Right-of-Way Impacts	3-16
3.6.3 Mitigation	3-16
3.7 Parks & Recreation	3-17
3.7.1 Affected Environment.....	3-17
3.7.2 Parks & Recreation Impacts	3-17
3.7.3 Mitigation	3-17
3.8 Section 6(f) Evaluation	3-19
3.8.1 Section 6(f) Properties.....	3-19
3.8.2 Section 6(f) Impacts	3-19
3.8.3 Mitigation	3-19
3.9 Air Quality.....	3-20
3.9.1 Affected Environment.....	3-20
3.9.2 Air Quality Impacts	3-20
3.9.3 Mitigation	3-20
3.10. Noise.....	3-20
3.10.1 Methodology.....	3-20
3.10.2 Noise Abatement Criteria & Impact Determination.....	3-20
3.10.3 Preliminary Screening Procedure.....	3-21
3.10.4 Affected Environment.....	3-21
3.10.5 Model Calibration	3-23
3.10.6 Noise Impacts	3-23
3.10.7 Contour Analysis	3-28
3.10.8 Noise Impact Summary	3-28
3.10.9 Mitigation	3-29
3.11 Water Resources/Quality	3-30
3.11.1 Affected Environment.....	3-30
3.11.2 Water Resources & Water Quality Impacts	3-32
3.11.3 Mitigation	3-32
3.12 Wetlands.....	3-33
3.12.1 Affected Environment.....	3-33
3.12.2 Wetlands Impacts.....	3-36
3.12.3 Practicable Alternatives.....	3-37
3.12.4 Mitigation	3-37
3.13 Wildlife, Fish & Vegetation	3-38
3.13.1 Wildlife.....	3-38
3.13.2 Wildlife Impacts.....	3-38
3.13.3 Mitigation	3-39
3.13.4 Rare & Sensitive Flora of Concern	3-39
3.13.5 Rare & Sensitive Flora Impacts	3-41
3.13.6 Mitigation	3-41
3.13.7 Rare & Sensitive Fauna of Concern	3-42
3.13.8 Rare & Sensitive Fauna Impacts.....	3-43
3.13.9 Aquatic Resources	3-43
3.13.10 Aquatic Resources Impacts.....	3-43

3.13.11 Mitigation	3-43
3.14.1 Vegetation.....	3-44
3.14.2 Affected Environment.....	3-44
3.14.3 Vegetation Impacts.....	3-44
3.14.4 Mitigation	3-44
3.15 Threatened & Endangered Species.....	3-45
3.15.1 Affected Environment.....	3-45
3.15.2 Threatened & Endangered Species Impacts	3-46
3.15.3 Mitigation	3-48
3.16 Flood Plains.....	3-50
3.16.1 Affected Environment.....	3-50
3.16.2 Flood Plain Impacts.....	3-50
3.16.3 Mitigation	3-50
3.17 Cultural Resources	3-52
3.17.1 Historic Resources.....	3-52
3.17.2 Archaeological Resources	3-52
3.17.3 Section 4(f) Evaluation	3-54
3.17.4 Cultural Resource & Section 4(f) Impacts.....	3-55
3.17.5 Mitigation	3-55
3.18 Hazardous Materials	3-56
3.18.1 Affected Environment.....	3-56
3.18.2 Hazardous Waste Impacts.....	3-57
3.18.3 Mitigation	3-59
3.19 Visual Resources.....	3-60
3.19.1 Affected Environment.....	3-60
3.19.2 Visual Resource Impacts	3-66
3.19.3 Mitigation	3-67
3.20 Construction & Erosion Control	3-68
3.20.1 Construction Impacts.....	3-68
3.20.2 Construction Mitigation	3-69
3.21 Permits Required	3-69
3.22 Secondary & Cumulative Impacts	3-70
3.22.1 Definition of Secondary & Cumulative Impacts	3-70
3.22.2 Secondary Impacts.....	3-70
3.22.3 Cumulative Impact Analysis	3-71
3.22.4 Secondary and/or Cumulative Impacts.....	3-71
3.22.5 Mitigation	3-71

Chapter Four:

Comments & Coordination	4-1
4.1 Public & Agency Involvement Activities	4-1
4.1.1 Public Involvement	4-1
4.1.2 Agency Coordination	4-1
4.1.3 Mailing List	4-1
4.1.4 Meetings with Jurisdictions & Elected Officials	4-4
4.1.5 Newsletters	4-4
4.1.6 Additional Community Mailings	4-4
4.1.7 Public Meetings.....	4-5

4.1.8 *Advisory Committee Meetings*4-5

4.1.9 *Remaining Public Involvement*.....4-7

Appendix A: Roundabout Intersections

Appendix B: Figures B-1 through B-14

Appendix C: Agency Letters

Appendix D: Programmatic Section 4(f) Evaluation

Appendix E: List of Preparers

List of Figures

Chapter One

Figure 1-1 Project Location	1-2
Figure 1-2 Study Area	1-3
Figure 1-3 Location of Project Segments	1-5
Figure 1-4 Rural Level of Service (LOS) Operations	1-7
Figure 1-5 Urbanized Level of Service (LOS) Operations	1-9
Figure 1-6 1999 Existing Peak Hour LOS	1-12
Figure 1-7 Existing Roadway with 2024 Peak Hour LOS	1-13
Figure 1-8 Crash Statistics 1996-1999	1-15
Figure 1-9a Segment 1 Characteristics	1-20
Figure 1-9b Segment 1 Needs	1-21
Figure 1-10a Segment 2 Characteristics	1-22
Figure 1-10b Segment 2 Needs	1-23
Figure 1-11a Segment 3 Characteristics	1-25
Figure 1-11b Segment 3 Needs	1-26
Figure 1-12a Segment 4 Characteristics	1-27
Figure 1-12b Segment 4 Needs	1-28
Figure 1-13a Segment 5 Characteristics	1-30
Figure 1-13b Segment 5 Needs	1-31

Chapter Two

Figure 2-1 Segment 1 Design Options, Woods Bay to Woods Bay Hill	2-3
Figure 2-2 Segment 1 Assessment of Options, Woods Bay to Woods Bay Hill	2-4
Figure 2-3 Segment 2 Design Options, Woods Bay Hill to SH-209	2-5
Figure 2-4 Segment 2 Assessment of Options, Woods Bay Hill to SH-209	2-6
Figure 2-5 Segment 3 Design Options, SH-209 to Grand Ave	2-8
Figure 2-6 Segment 3 Assessment of Options, SH-209 to Grand Ave	2-9
Figure 2-7 Segment 4 Design Options, Grand Avenue to Ice Box Canyon	2-10
Figure 2-8 Segment 4 Assessment of Options, Grand Avenue to Ice Box Canyon	2-11
Figure 2-9 Segment 5 Design Options, Ice Box Canyon to End of Project	2-13
Figure 2-10 Segment 5 Assessment of Options, Ice Box Canyon to End of Project	2-14
Figure 2-11 Evaluation of Intersection Alternatives	2-17
Figure 2-12 Elements of the Preferred Alternative	2-19

Chapter Three

Figure 3-1 Study Area Regional Land Use	3-2
Figure 3-2 Existing Land Use	3-3
Figure 3-3 Zoning	3-4
Figure 3-4 Prime Farmland	3-8
Figure 3-5 Community Facilities	3-10
Figure 3-6 Non-Motorized Provisions	3-15
Figure 3-7 Parks & Recreation	3-18

Figure 3-8 Noise Receptor Sites in Woods Bay	3-25
Figure 3-9 Noise Receptor Sites in Bigfork	3-27
Figure 3-10 Water Resources	3-31
Figure 3-11a Wetlands (South)	3-34
Figure 3-11b Wetlands (North)	3-35
Figure 3-12 100 Year Flood Plain	3-51
Figure 3-13 Cultural Resource Sites.....	3-53
Figure 3-14 Hazardous Materials Sites.....	3-58

Chapter Four

Figure 4-1a Time Line	4-2
Figure 4-1b Time Line Cont.	4-3

List of Tables

Executive Summary

ES-1 Permits Required	ES-9
-----------------------------	------

Chapter One

Table 1-1 Signalized Intersection LOS Criteria	1-8
Table 1-2 Un-Signalized Intersection LOS Criteria	1-8
Table 1-3 MT-35 Average Annual Traffic Volumes	1-10
Table 1-4 Projected Traffic	1-14

Chapter Two

No Tables

Chapter Three

Table 3-1 Population Trend Overview	3-9
Table 3-2 Population Characteristics	3-9
Table 3-3 1999 Industry Earnings	3-13
Table 3-4 Noise Abatement Criteria (NAC)	3-21
Table 3-5 Noise Monitoring Results	3-22
Table 3-6 Model Calibration Results	3-23
Table 3-7 Existing & Future Noise Levels Near Woods Bay (Peak).....	3-24
Table 3-8 Existing & Future Noise Levels Near Bigfork (Peak).....	3-26
Table 3-9 Summary of Wetland Function/Value Ratings & Classifications.....	3-36
Table 3-10 Wetland Impacts by MDT Classification	3-36
Table 3-11 Plant Species of Special Concern	3-40
Table 3-12 Species of Special Concern, Which May Reside in the Bigfork N&S Project Area.....	3-42
Table 3-13 Threatened & Endangered Species Summary of Bigfork N&S Project.....	3-47
Table 3-14 Eligible Sites Within the Study Area	3-54
Table 3-15 Sites Identified as Potential Environmental Concerns.....	3-56
Table 3-16 Sites of Potential Impact	3-57
Table 3-17 Permits Required	3-69

Chapter Four

No Tables



Executive Summary

Introduction

The Preferred Alternative was developed through a collaborative and interactive effort with the community and addresses many issues. The process was conducted according to the principles of Context Sensitive Design such that the Preferred Alternative: 1) Meets the transportation needs identified in the Purpose & Need; 2) Is compatible with the natural and built environments; and 3) Is an asset to the community. The Elements of the Preferred Alternative include:

- ▶ Cross-sectional elements: traffic lanes, shoulders, clear zones, medians, ditches and slopes.
- ▶ Intersection treatments: traffic control measures, traffic signals, roundabouts, etc.
- ▶ Safety and operational improvements to geometric conditions, intersection configuration, and alignments are included to address specific areas of concern.
- ▶ Community Entry Treatments: measures to identify the entrances of the developed communities to the MT-35 traveler.
- ▶ Non-Motorized Facilities: multipurpose facilities, walkways and roadside treatments.
- ▶ A new Swan River Bridge.
- ▶ Supporting infrastructure elements. These elements are those required to support all the transportation features such as retaining walls, drainage features, etc.

The proposed action creates impacts of varying degrees to both natural and man-made environmental resources. Most impacts are mitigated to reduce impact intensity.

Summary of Impacts

The following impacts are drawn from the analysis created through the environmental assessment. While the preferred alternative has various positive impacts to area resources, only the potentially negative impacts are listed below.

A. Air Quality Impacts

Some increase in particulate emissions will result from a larger road surface and the sanding used for icy conditions during the winter months. Short-term increases in air pollution will result from construction-related traffic and in particulate emissions from ground disturbances.

B. Construction Impacts

Short-term impacts will be created throughout the construction period. Construction-related impacts include:

1. Air Quality - Construction activities such as earthwork, grading, roadbed preparation, vehicles hauling soil or debris, and unprotected exposed soils can increase local fugitive dust emissions.
2. Noise and Vibration - Construction noise and vibration will present the potential for short-term impacts to those receptors found along the corridor.
3. Water Quality - Storm water runoff from areas of exposed soils may cause erosion, sedimentation and transport of spilled fuels or other hazardous materials into adjacent waterways.
4. Traffic Control - Delays due to construction are expected to create short-term impacts on traffic.
5. Visual - Short-term construction-related visual impacts are likely to occur because of the Preferred Alternative.



C. Hazardous Waste Impacts

Potential exists for encountering contaminated soil and groundwater within the proposed construction area. The following Underground Storage Tank (UST) sites may require tank closure. Exact requirements will be determined during the final design phase:

1. Sinclair Station, 8111 MT-35 - Bigfork, Montana.
No new right-of-way requirements have been identified; however, the present facility appears to encroach upon existing highway right-of-way. If contamination is present, remediation may extend to closure of the present UST.
2. Bigfork Stage Stop, 8263 MT-35 - Bigfork, Montana.
Additional right-of-way requirements have been identified. If contamination is present, remediation may extend to closure of the present UST.

The following sites will be affected due to construction of the Preferred Alternative.

1. Bob's Woods Bay Market (Conoco Station), 26787 MT-35 - Woods Bay, Montana.
Additional right-of-way requirements have been identified. If right-of-way requirements render the remaining property unable to support the current business removal of the current UST system may be required.
2. Former Shorty's Gas Station, 7985 MT-35 - Bigfork Montana.
During construction it is possible that former underground lines including possible UST fuel lines may be encountered at this site.
3. Swan River Bridge Structure.
The Preferred Alternative will include replacement of the Swan River Bridge. The structure includes lead-based paint and specific precautionary measures will be required.

D. Noise Impacts

1. Bigfork Area
In the Bigfork area, only one location (Receptor SW6) was projected to be affected by an increase in noise levels with the Preferred Alternative in 2024. This receptor is a home located along the west side of MT-35 and south of the SH-209 alignment. The noise level projected for this area is 67.2 decibels. The apparent reasons for this isolated impact in Bigfork are the higher vehicular speeds modeled along MT-35 south of SH-209.
2. Woods Bay Area
Several noise impacts were projected for the Woods Bay area with the Preferred Alternative in 2024. These impacts are projected to occur at homes and commercial properties along both sides of MT-35. According to the existing conditions modeling results, many of these locations are already experiencing noise levels that approach or exceed the NAC for residential and commercial developments. The noise levels in this area are primarily attributable to the grades along this portion MT-35 and the reduced setbacks between the roadway and structures in Woods Bay.
3. The results of the noise contour analysis shows approximately seven homes between Woods Bay and Bigfork and one home north of Bigfork will be affected. While the Preferred Alternative creates certain noise impacts, it should be noted that the No-Action Alternative creates similar levels of noise impacts and that the noise impacts are not due to differences between the Preferred and No-Action Alternatives.



E. Rare & Sensitive Flora Impacts

The proposed action will disturb areas that currently support native plant populations and landscaped vegetation. Disturbing new ground may allow for an increase in noxious weeds and the introduction of new weeds.

One population of many-headed sedge (*Carex sychnocephala*, a plant species of special concern), is found within MT-35 right-of-way, between the roadbed and the edge of a pond and wetland area on the west side of the roadway, between RP 27.6 and RP 27.9. Any construction-related activities in this area could potentially destroy individuals of the population.

F. Right-of-Way Impacts

Additional right-of-way is necessary throughout the project in many areas. Approximately 16.6 hectares (41.1 acres) of new right-of-way from approximately 260 parcels will be required. In addition to many undeveloped parcels of property needed for expansion of the right-of-way, several parcels containing residential and commercial developments will be affected. Possible impacts to properties associated with right-of-way are:

1. Damages to property due to the proximity of the new right-of-way line. The new right-of-way may not directly affect existing buildings on the remaining property, but could affect the access, utility, and the value of the remaining property. Proximity damages may lead to complete acquisition and relocation of homes and businesses, even if they are outside of the initial right-of-way requirement.
2. Preliminary right-of-way requirements show that approximately seven commercial developments and five residential developments could be subject to damages due to the proximity of the new right-of-way line.

G. Threatened & Endangered Species Impacts

While the project is not expected to take any bull trout, the remote possibility remains that individual bull trout could be killed by the project. The potential exists that falling debris from bridge demolition could kill individual fish in the area. Based on this possibility the appropriate determination is "may affect, not likely to adversely affect" bull trout.

Additionally, Canada lynx and gray wolf are possibly in the area; however, they are more likely to occur in the rugged back country than along the highway corridor. Bald eagles may also be present; however, no nests were found within or near the study area.

H. Visual Resource Impacts

Visual impacts associated with the Preferred Alternative will be both short and long-term. Short-term visual impacts associated with the Preferred Alternative include:

1. Construction equipment and excavated material associated with construction in the staging areas.
2. Dust and debris associated with construction activity.
3. Traffic congestion associated with construction activity.

Long-term visual impacts associated with the Preferred Alternative include:

1. Slope cuts and fills will change the existing landscape character along the alignment.
2. Expansion of the width of the paved surface for wider shoulders.
3. Expansion of the width of the clear zone area.
4. Additional structures such as retaining walls and roadside protective barriers.



I. Water Resources & Water Quality Impacts

Increased sediment is one possible short-term impact during construction of the Preferred Alternative. During construction, and at specific locations, an increase in sediment loading into streams may occur. A short-term change in the rate of erosion from land surfaces may occur due to removal of vegetation; however, an impact of this type would occur only if there is a large rainstorm or runoff from snow-melt.

J. Wetlands Impacts

The Preferred Alternative is estimated to have permanent impacts on a total of 0.15 hectares (0.37 acres) of wetlands. Additional temporary and indirect wetland impacts may occur during construction.

K. Wildlife Impacts

Vehicle-related wildlife mortality is an important factor in highway safety issues. During 2000 to 2002, MDT removed the carcasses of 53 white-tailed deer and one elk from the right-of-way within the corridor. Numbers of vehicle-injured wildlife dying outside the right-of-way may be as high as those dying within the right-of-way. Animal-vehicle collisions appear to occur uniformly throughout the study corridor, with no concentrations at specific locations; therefore, no designated wildlife crossings are included in the Preferred Alternative. Local residents have commented that numerous animal-vehicle collisions occur near the existing equestrian crossing near reference post (RP) 29.9. Residents expressed strong opinions that an equestrian/pedestrian crossing that could serve for wildlife crossing be installed at that location. To address this concern, an equestrian/pedestrian crossing is included in the preferred alternative. It will be configured to allow for wildlife to pass during months when high levels of equestrian activity is not present.

Increasing the pavement widths and widening the clear zones could discourage wildlife crossing between the lake and forested areas, but the effects of such efforts are not anticipated to be substantial. Minor, short-term habitat displacement of smaller mammal, avian, amphibian and reptile species is expected to occur within the construction limits, due to short-term disruption of the environment and construction noise. In particular, the young of songbirds, small ground-nesting mammals, amphibians and reptiles may suffer localized but direct losses of individuals unable to evade construction equipment.

Widening the clear zone may potentially have both a positive and a negative impact on wildlife. The positive impacts would include reducing wildlife mortality, due to increased sight distances for drivers to see and avoid wildlife. Widening the clear zone may also have the negative impact of contributing to habitat fragmentation by dividing habitat and creating a wider barrier for animals to cross.



Major Issues Raised During the Stakeholder Process

The following is a summary of the issues raised by the community during the stakeholder process and how the Preferred Alternative addresses these issues:

1. Operating Speed of Traffic - Many concerns were raised about the current operating speed of traffic along MT-35. The community expressed the desire to encourage drivers to slow down and drive at an appropriate speed for populated areas along the corridor. One method used to address this issue is to include community entry treatments in the Preferred Alternative. The entry treatments have been designed to call attention to the populated sections of MT-35 and to suggest slower speeds are necessary.

The Preferred Alternative also addresses the overall operating speed throughout the communities of Woods Bay and Bigfork by using aesthetically pleasing design elements such as: retaining walls, raised medians, and roundabout intersections. These design features are unique to the communities and help convey to the motorist that they are in a populated area.

2. Provide a facility that is consistent with the overall visual value of the corridor and the resort community. These concerns centered on the roadway contributing to, not distracting from the local economy and unique visual qualities of the area. Specific aesthetic treatments are:

- ▶ Unique landscaping elements within the medians and roundabouts,
- ▶ Retaining wall designs that complement rather than detract from the surrounding vegetation,
- ▶ The appearance of the new Swan River Bridge,
- ▶ Minimizing the appearance of the paved road by using partially paved and partially landscaped shoulders to make them narrower in appearance,
- ▶ The use of V-ditches to limit roadside disturbance, and
- ▶ Limiting impacts to existing vegetation.

The Advisory Committee requested that these elements be incorporated into the Preferred Alternative and MDT and FHWA have given their approval for their inclusion.

3. Non-Motorized Travel - The Preferred Alternative supports the communities' vision to create a pedestrian and bicycle friendly environment. It does this by including multipurpose paths, or walking paths with designated bike lanes throughout much of the corridor area to provide for pedestrian and bicycle travel between Bigfork and Woods Bay and within the communities.

4. Highway Safety - Safety along the highway is a major area of concern for the community. Several of these safety concerns have been addressed in the Preferred Alternative through flattening curves and improving sight distances at various locations throughout the corridor. The frequency of head-on collisions in Ice Box Canyon has also been addressed by including a median barrier for this section of the project in the Preferred Alternative.

5. Swan River Bridge - The community expressed a strong desire to keep the bridge open during the tourist season (May - mid September) for both boats under the bridge and two-way travel over the bridge. The Preferred Alternative calls for specific construction phasing and incentives to keep the bridge open as much as possible during the tourist season. The community also expressed concern regarding piers in the water. The proposed (to be determined in final design) design of the new



structure and increased water-to-structure clearance allows for more open waterway and a configuration that spans the main waterway.

6. Minimize Impacts to Existing Vegetation - The large trees and vegetation that contribute to the scenic qualities of the corridor are highly valued by the community. They have asked to keep as much of the existing vegetation as is possible. The Preferred Alternative includes mitigative measures that apply to the existing vegetation and call for prompt re-vegetation of all disturbed areas outside of the paved roadway.

7. Construction Sequencing - The economy of Bigfork and Woods Bay is highly dependent on the tourism industry; as such, the community was very concerned that tourists may be discouraged to visit the communities due to the construction of the highway. The Preferred Alternative defines mitigative measures that require no extended periods (no greater than one week in any one location) of one way traffic operation be allowed during the tourist season. The contractor will be required to inform the advisory committee on a regular basis of the construction schedule.



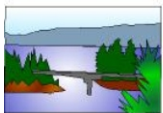
Summary of Mitigative Measures

Through the analysis and development of this environmental assessment, mitigative measures have been recommended for specific impacts to specific resource areas affected by the construction of the Preferred Alternative. Compilation of all of the various mitigative measures entails a substantial duplication of intent. The following mitigative measures have been condensed from all of the mitigative measures found in the environmental assessment.

- ✓ **Bull Trout**
Notify the USFWS Montana Field Office within 24 hours if bull trout are found dead, injured, or sick.
- ✓ **Grizzly Bears**
The contractor will report any Grizzly Bear sightings to the MDT District Biologist.
- ✓ **Hazardous Materials**
 1. Soil Contamination - Phase II Soil Sampling will be conducted at the edge of the MDT right-of-way, next to all existing service stations/UST sites along the project corridor.
 2. The paint on the existing Swan River Bridge contains lead and is considered a hazardous waste, the contractor will follow appropriate management practices for handling hazardous paint materials.
- ✓ **Indigenous Raptors**
 1. All overhead power utility relocations will be raptor-proofed according to MDT policy.
 2. Removal of mature trees suitable for raptor perch sites should be minimized during all clearing operations.
 3. The Contractor will inform the MDT district biologist of any occupied eagle nest observed within 0.8 km (0.5 mi) of the proposed project during construction.
- ✓ **Many-Headed Sedge (*Carex Sychnocephala*)**
Before construction, a qualified biologist will survey the construction area to inventory the number and location of many-headed sedge plants. If practical, the contractor will manage construction activities to avoid or limit impact to the plants.
- ✓ **Noxious Weeds**
Comply with the requirements of the County Noxious Weed Management Act.
- ✓ **Public Safety**
 1. Potential impact to human health and safety should be avoided, through proper identification and management of contaminated materials, according to local, state and federal regulations.
 2. Appropriately use roadside protective barriers to provide shielding of roadside hazards
 3. Use Best Management Practices (BMP) to control particulate and dust emissions to reduce dust impacts associated with construction activities.
 4. Develop construction staging and traffic control plans that reduce the disruption to traffic and access.
 5. Provide adequate public notice and maintain coordination with area residents and businesses to keep the public informed of the construction progress and to warn of closures and detours.



- ✓ **Right-of-Way Acquisition**
All right-of-way acquisition will be done according to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (1989). All affected property owners will be compensated at fair market value for their property.
- ✓ **Storm Water Pollution Prevention Plan (SWPPP)**
A SWPPP will be submitted to the Montana Department of Environmental Quality (MDEQ) Water Quality Division according to the Montana Pollutant Discharge Elimination System Regulations (ARM 17.30.11, 12, & 13). MDT's Erosion and Sediment Control Best Management Practices Manuals (BMP) will be included in the design and construction. Proper erosion control measures will be installed according to BMP and monitored for performance and condition throughout the construction period to insure effectiveness.
- ✓ **Toxic Waste**
Assure contractor adherence to BMPs relating to water quality and the handling of fuels, lubricating fluids, herbicides, other chemicals, and other contaminants according to the label and local regulations.
- ✓ **Vegetation**
Re-establish permanent desirable vegetation along roadway right-of-way. Develop a set of re-vegetation guidelines to include instructions on seeding methods, seeding dates, types and amounts of mulch and fertilizer, along with the seed mix components. Seed mixes will include a variety of species to allow vegetative cover to stabilize the areas disturbed by construction rapidly.
- ✓ **Visual**
Clearing and grubbing activities, including tree removal in riparian areas, will be restricted to the minimum area necessary to satisfy the planned reconstruction activities and improvements.
- ✓ **Wetlands**
All wetland areas potentially affected by construction activities both within and outside the right-of-way will be flagged or fenced to avoid unnecessary disturbance.
- ✓ **Wildlife**
Prompt removal of road kills will occur during construction by the contractor and following project construction by MDT maintenance personnel.
- ✓ **Noise**
Limit noise-generating construction activities to occur between the hours of 7:00 a.m. and 9:00 p.m. near residential areas to reduce noise impacts.



Permits

The following permits are necessary before work can begin on the project:

	Table ES-1 Permits Required	
Permit	Agency	Purpose
Stream Protection Act (SPA 124)	Montana Department of Fish, Wildlife & Parks (MDFWP)	This permit must be obtained for any project that may affect the natural existing shape and form of any stream, banks, or tributaries.
Section 404 Permit (Federal Clean Water Act)	US Army Corps of Engineers (COE)	The proposed project will require a 404 permit under the provisions of the Clean Water Act (33 USC 1251-1376) and 33 CFR 330.
Storm Water Discharge General Permit (NPDES/MPDES Permit)	Montana Department of Environmental Quality (MDEQ)	This permit is required for construction activity that would disturb more than .4 hectare (1 acre). A Storm Water Pollution Prevention Plan will be developed for the project.

Additionally, the contractor is required to obtain 318 Authorization from the Montana Department of Environmental Quality (MDEQ). This authorization must be obtained for construction activities that may cause unavoidable short-term violations of state surface water quality standards for turbidity, total dissolved solids, or temperature.

Positive Results of the Proposed Action

This project has been developed according to the principles of Context Sensitive Design (CSD). Incorporating the public's input and the principles of CSD results in an improvement project with enhanced positive impacts. Although the Preferred Alternative will have many positive impacts, only some of these are listed:

- ▶ The Preferred Alternative fulfills the communities' desire to create a pedestrian and bicycle friendly corridor. The non-motorized elements included in the Preferred Alternative provide a more comfortable, safer, and aesthetically pleasing facility than the current roadway.
- ▶ The Preferred Alternative provides a safer transportation facility. The solutions to the current safety hazards within the corridor include flattened curves, improved grades, wider clear zones, provisions for passing stalled vehicles, and wider shoulders.
- ▶ The Preferred Alternative includes a new bridge over the Swan River. The present Swan River Bridge is in a state of decay and is not seismically adequate. The new bridge will be aesthetically pleasing in its design, will include facilities for pedestrian and bicycle travelers and will provide an improved waterway for the Swan River.



- The Preferred Alternative will visually enhance the MT-35 corridor through Bigfork and Woods Bay. Several design elements such as retaining walls and barriers, re-vegetation of cut and fill areas and walking or multipurpose paths along the corridor will complement the intrinsic beauty of the corridor.
- The Preferred Alternative will provide for better traffic flow within the developed portions of the study area. Elements such as medians, two-way-left-turning-lanes, and designated right and left turning lanes will create a facility with better traffic flow.
- The Preferred Alternative will improve several key intersections within the corridor. The addition of roundabouts at the intersections of MT-35/State Highway 209 (SH-209) and MT-35/Bridge Street/Sunset Drive will help to provide better traffic control in these intersections. Improvements will also be made to the signalized intersection of MT-35/Grand Ave/Holt Drive and a new signal will be added at MT-35/Lake Hills Drive.
- The Preferred Alternative provides Community Entry Treatments to identify the populated areas of the corridor and to alert drivers that slower speeds are appropriate. The entry treatments will not only be used to identify the populated areas, but will be visually pleasing as well.



Chapter One: Purpose & Need

1.1 Study Area Description

The proposed roadway improvement project is found along the eastern edge of Flathead Lake in Northwestern Montana, in both Flathead and Lake Counties. Montana 35 (MT-35) is a minor arterial road that runs from the town of Polson on the south to Kalispell on the north. The section of MT-35 in the proposed project starts in the unincorporated community of Woods Bay and continues north through the unincorporated community of Bigfork, near the junction of MT-35 and MT-83. **Figure 1-1** and **Figure 1-2** show the project location and study area.

The Bigfork North & South project is in western Montana along the northeastern edge of Flathead Lake and includes the unincorporated community of Bigfork. Bigfork is approximately 884 meters (2900 ft) above sea level. Bigfork has an average high of 28°C (82°F) in July and an average low of -12°C (11°F) in January. Annual precipitation in the Flathead Valley averages 0.51 m (20 in) of rain and 1.24 m (49 in) of snow.

The proposed roadway improvement project is 11.1 km (6.89 mi) in length and consists of the portion of the roadway from Reference Point (RP) 26.4 to RP 33.3. The study area corridor covers an area of approximately 122 m (400 ft) wide for the length of the proposed improvement.

MT-35 is a key north-south route in western Montana serving local, tourist, agricultural, and commercial interests. It is the main route for the citizens of Woods Bay, Bigfork, and residents along the eastern shore of Flathead Lake to reach schools, shopping, medical services, and places of employment. It is also a major tourist route during the summer months serving the eastern shore of Flathead Lake and providing a popular scenic route to Glacier National Park, found approximately 48 km (30 mi) to the north of the project. In addition, MT-35 is a key corridor for trucks transporting raw materials from the northern timber harvest areas to the Missoula area for the paper products industry.

The section of the roadway studied passes primarily through coniferous forests with a mountainous topography and some open meadow. Commercial developments are clustered at specific points, particularly at Woods Bay and along the commercial strip in the community of Bigfork.

The roadway in the study area is generally narrow and winding with substandard shoulders. Many access points, both public and private, serve residential and commercial areas, with little access control. This contributes to problems with safety and traffic flow.

The only signalized intersection within the study area is in Bigfork at MT-35 and Grand Avenue. Other key roadways within the study area include State Secondary Highway 209 (SH-209), which intersects MT-35 south of the Swan River Bridge, Grand Avenue and Bridge Street. SH-209 provides an east-west connection between MT-35 and MT-83 and to the town of Ferndale. Grand Avenue is a main access roadway north of the Swan River Bridge. It connects Bigfork to the east with residential areas, businesses, and a golf course community found to the west of MT-35 along Flathead Lake. Bridge Street provides access to the portion of Bigfork that is south of the Swan River. Bridge Street also connects MT-35 with the older Swan River Bridge that is next to downtown Bigfork.

The boundaries of this project have been identified based on public participation. Originally, the project started at RP 27.3, just north of Woods Bay on the southern end, and terminated at RP 33.2, just south of Chapman Hill Road. These limits were originally identified to address safety and maintenance issues on this portion of the highway. The northern boundary of the Bigfork North & South project connects to the southern end of a recently completed project to improve MT-35 called Creston North & South.



Figure 1-1 Project Location

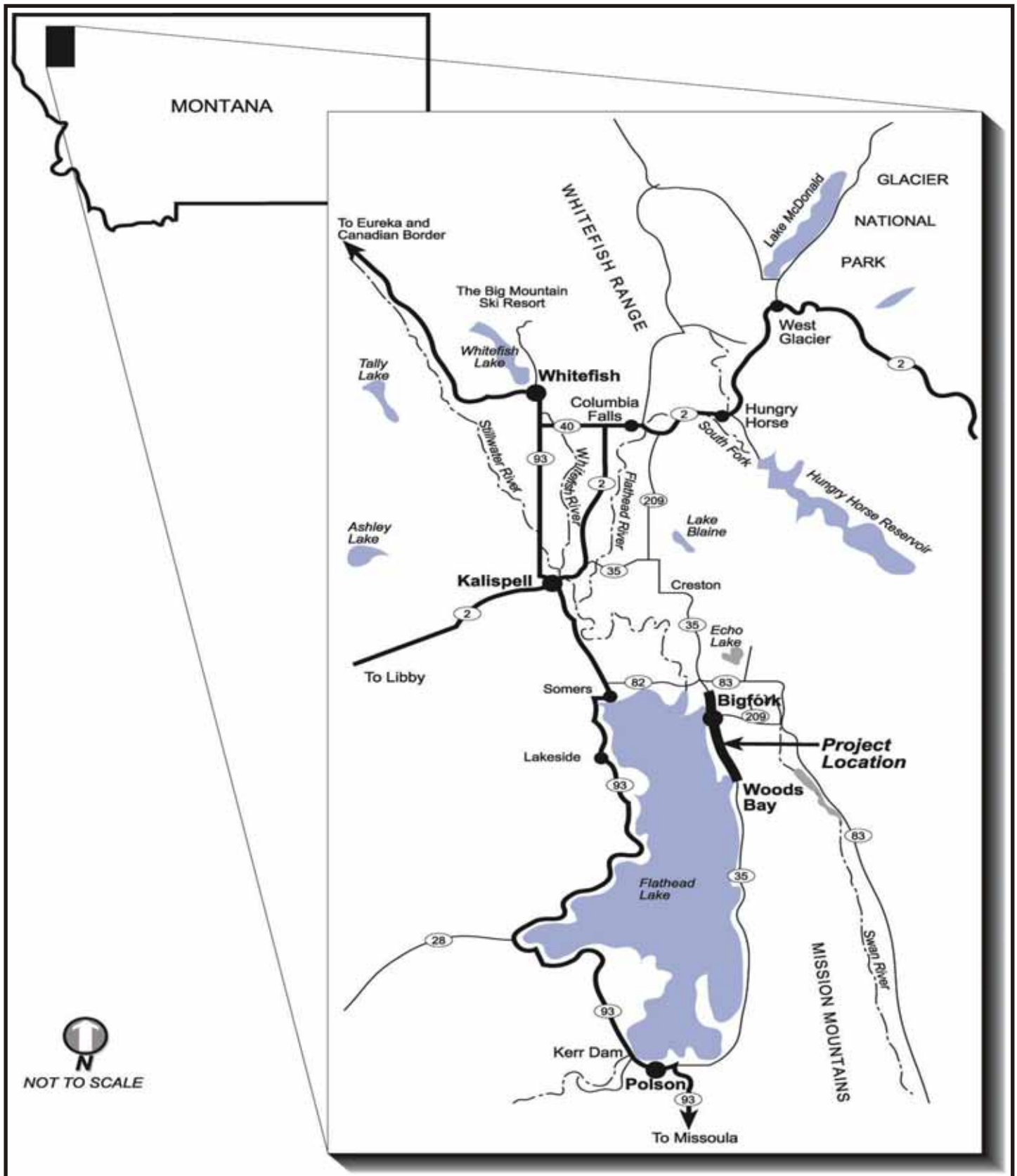
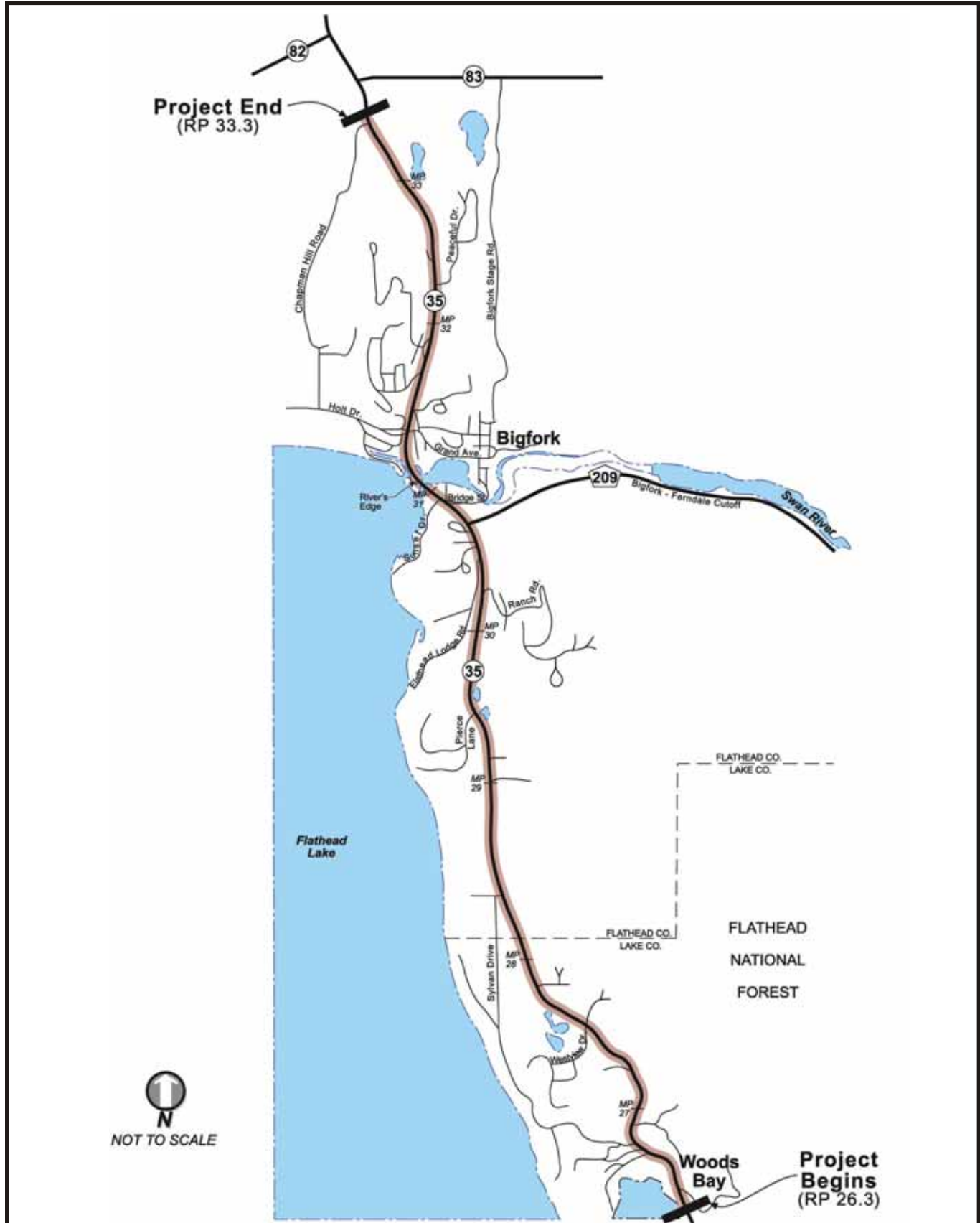




Figure 1-2 Study Area





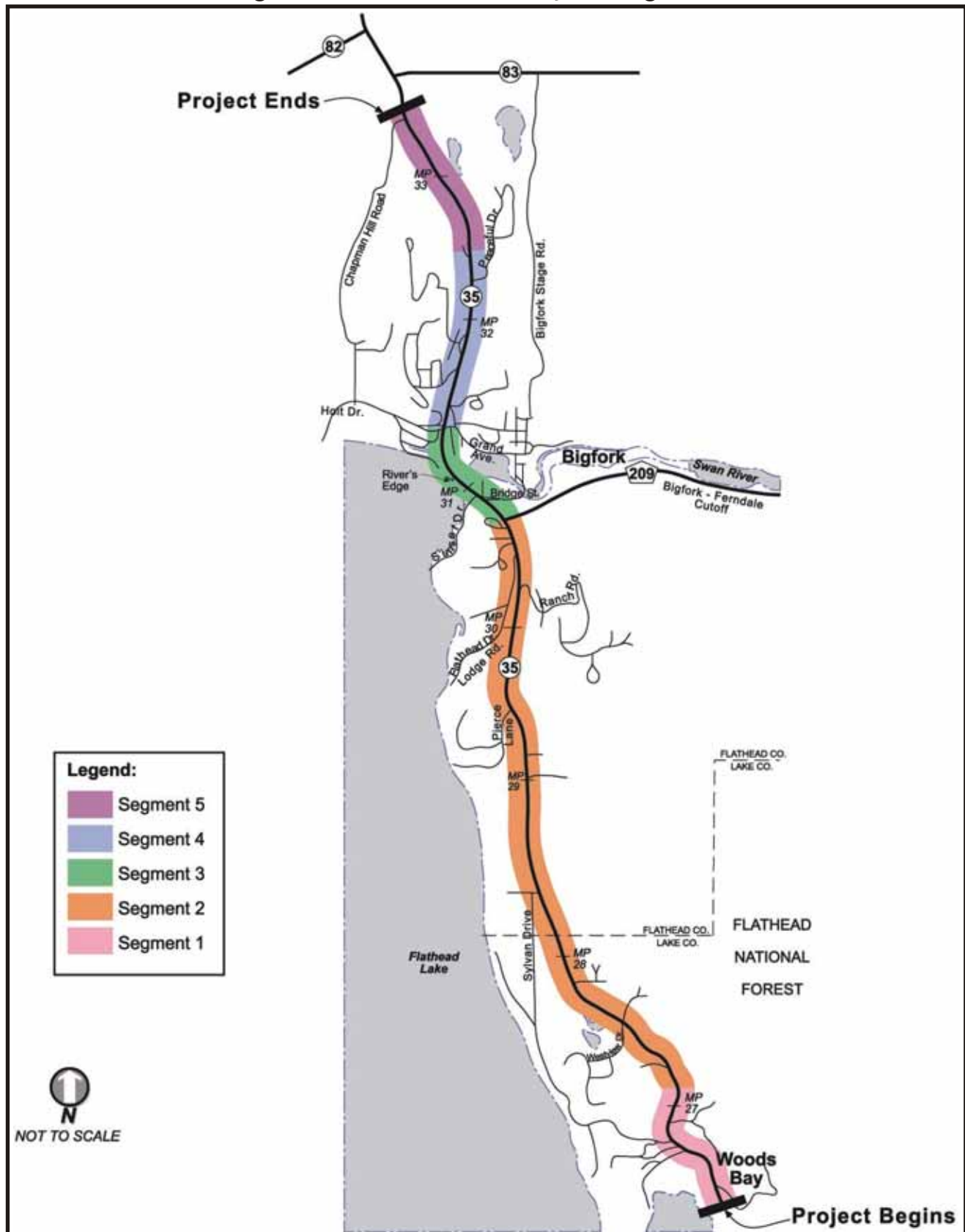
Based on participation from the community during a public involvement meeting in December of 1999, the southern project boundary was adjusted to RP 26.3 at Driftwood Lane in Woods Bay. The public expressed their desire to include Woods Bay Hill in the project to address the tendency for trucks or other vehicles to become stuck on the hill during icy conditions, effectively closing the road.

The project's northern boundary was adjusted to include improvements to the Chapman Hill Road intersection. This was done to address increasing traffic moving in and out of Chapman Hill Road. The community also expressed concerns regarding the intersection at MT-35 and MT-83, also known as "Streeter's Corner" and suggested that the project be extended to include this intersection. MDT has initiated a separate safety improvement study of the MT-35/MT-83 intersection, rather than extending the project to address this issue.

The topographic and land use characteristics of the corridor vary considerably over the project length. To consider the needs of the entire project adequately, the corridor was divided into segments that exhibit similar geographic or transportation characteristics. The segments are illustrated on **Figure 1-3** and discussed in detail in Section 1.9: Segment Road Description & Needs of this document.



Figure 1-3 Location of Project Segments





1.2 Capacity Analysis

Level of Service (LOS) is a qualitative measure that describes the convenience of a facility in factors such as speed, travel time, travel delay and freedom to maneuver. This measure ranges from LOS A, which describes free-flow or uninterrupted travel conditions, to LOS F, which represents heavily congested flow with travel demand exceeding capacity. LOS is measured differently for rural (free-flow) roads and roadways with many traffic control features, typical for more urbanized conditions. The MT-35 corridor contains both free-flow roads and those with many traffic control devices. Although the character of the Bigfork area is not urbanized in the traditional sense, the LOS measurements for the roadways within the Bigfork area will be analyzed under the urban category due to the presence of traffic control devices. The rural and urban LOS measurements will be discussed separately in this document.

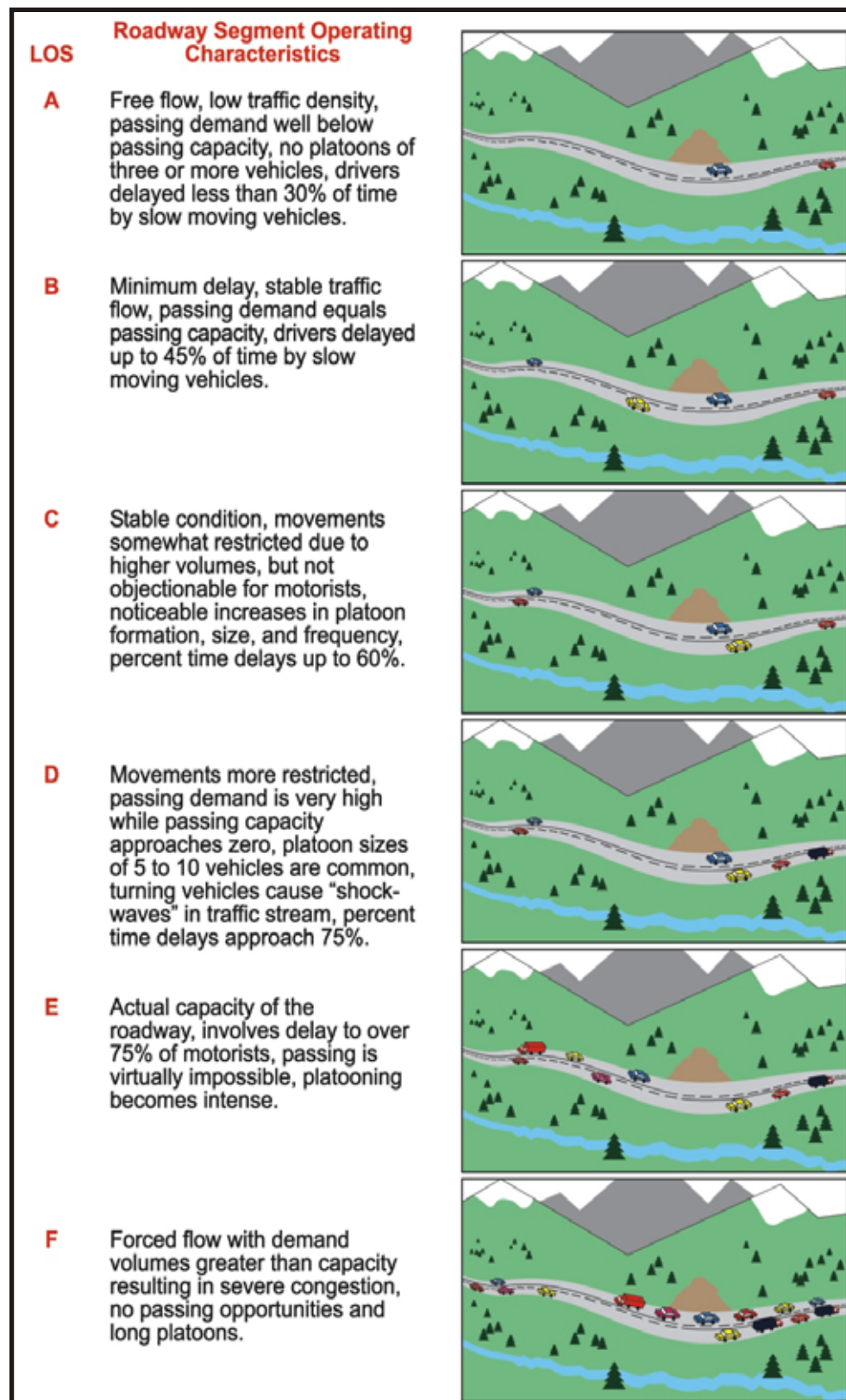
1.2.1 Rural LOS Measurements

The general characteristics of the LOS categories for a rural, two-lane highway with posted speeds of 97 to 105 kph (60 to 65 mph) are described below. **Figure 1-4** illustrates the Rural LOS operations.

- ▣ Level of Service A - Average speeds approach 97 kph (60 mph) on level terrain. Passing demand is well below passing capacity. Slow-moving vehicles delay drivers no more than 30 percent of the time.
- ▣ Level of Service B - Average speeds approach 89 kph (55 mph) on level terrain. Passing demand meets passing capacity as LOS C is approached. Slow-moving vehicles delay drivers up to 45 percent of the time.
- ▣ Level of Service C - Average speeds still exceed 84 kph (52 mph) on level terrain. Passing demand exceeds passing capacity. Slow-moving vehicles delay drivers up to 60 percent of the time.
- ▣ Level of Service D - Average speeds drop to about 81 kph (50 mph) on level terrain. Passing demand is very high, while passing capacity approaches zero. Slow-moving vehicles delay drivers up to 75 percent of the time.
- ▣ Level of Service E - Average speeds drop below 81 kph (50 mph) on level terrain. Passing is virtually impossible. Slow-moving vehicles delay drivers most of the time.
- ▣ Level of Service F - Average speeds drop significantly. Passing demand is very high, while passing capacity approaches zero. Flow is heavily congested.



Figure 1-4 Rural Level of Service (LOS) Operations





1.2.2 Urban LOS Measurements

The Highway Capacity Manual defines LOS for interrupted flow facilities (signalized and unsignalized intersections) using the concept of control delay. Control delay is expressed in seconds-per-vehicles. It is the delay encountered by motorists and can be attributed to the traffic control device(s). This type of analysis will be used for segments 3 and 4 (**Figure 1-3**) where many access points and traffic control devices dictate traffic operations typical of suburban or urbanized type developments. The basic LOS criteria for signalized intersections are shown in **Table 1-1**. Similarly, the unsignalized LOS criteria are shown in **Table 1-2**. The general characteristics of the LOS categories for an urbanized two-lane roadway are described in **Figure 1-5**.

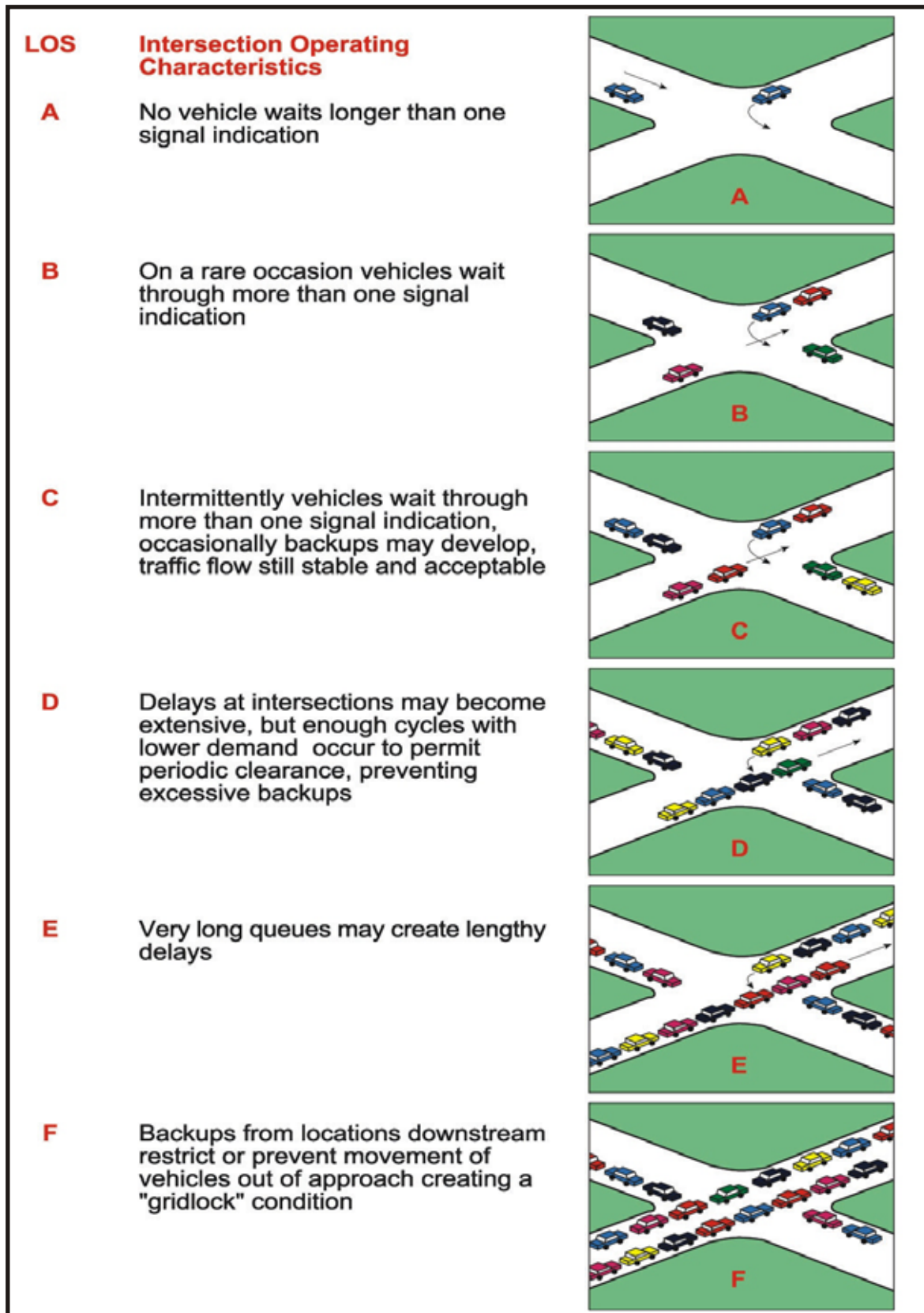
Table 1-1	
Signalized Intersection LOS Criteria	
LOS	Control Delay
	(seconds-per-vehicle)
A	< 10
B	> 10 and <= 20
C	> 20 and <= 35
D	> 35 and <= 55
E	> 55 and <= 80
F	> 80

Table 1-2	
Un-Signalized Intersection LOS Criteria	
LOS	Control Delay
	(seconds-per-vehicle)
A	< 10
B	> 10 and <= 15
C	> 15 and <= 25
D	> 25 and <= 35
E	> 35 and <= 50
F	> 50

The existing LOS for the movements at intersections in segments 3 and 4 vary from Level A to Level F. **Figure 1-6** lists these movements and levels of service. Using the current roadway configuration, the projected year 2024 LOS at these intersections are illustrated on **Figure 1-7**. While the LOS for current and forecasted conditions appear to be the same, lower LOS occur more frequently in the year 2024.



Figure 1-5 Urbanized Level of Service (LOS) Operations





1.3 Existing Traffic Volume & Vehicle Characteristics

1.3.1 Traffic Volume & Vehicle Characteristics

MDT provided Average Daily Traffic (ADT) data for this section of MT-35 based on traffic counts taken during years 1980 to 1998. These historical traffic volumes indicated a wide variation from north to south. The annual growth rate for traffic volumes during this period from 1980 to 1998 varied from 1percent to 8percent per year. Although traffic data shows a high growth rate in the early 1980's, this rate has become consistent between 2percent and 4percent annually over the past five years.

Traffic counts were also collected during the summer of 1999. Historical trends and anticipated development patterns along with traffic counts form the basis for projecting travel demand, evaluating the need for traffic signals and determining hourly directional and turning movement volumes. Due to the wide disparity in volume throughout the corridor, the volume data based on the 1999 counts has been related to the specific segments of the project.

According to MDT, the traffic counts that were collected in August 1999 on rural minor arterials should be factored by 0.79 to represent annual average conditions. This reduction was applied to the 1999 daily traffic counts to reflect the Annual Average Daily Traffic volumes (AADT). **Table 1-3** summarizes the traffic counts collected in 1999 and the resulting seasonal adjustment applied to compute the AADT.

Peak traffic volumes occurred both at the noon hour and in the afternoon. The afternoon peak is from 2 p.m.-6 p.m. These peaks each represent approximately 7 percent to 8.5 percent of the ADT.

The vehicle characteristics present in the 1999 traffic counts were 87 percent passenger vehicle, 8 percent light trucks and 5 percent heavy trucks. Clearly the primary component of traffic is passenger vehicles. However, based on comments during the public involvement process, the presence of heavy trucks is noticeable and the associated noise and safety issues are of considerable concern for the community.

Table 1-3		
MT-35 Average Annual Traffic Volumes		
Segment	August 1999 ADT ¹	1999 AADT ²
	(vpd)	(vpd)
1	6,300	5,000
2	7,300	5,775
3	12,025	9,500
4	11,475	9,075
5	10,600	8,375
Source: 1999 Traffic counts		
1- ADT=Average Daily Traffic		
2- AADT=Annual Average Daily Traffic, adjusted for seasonal variations.		



1.3.2 Existing LOS Analysis

LOS analyses were conducted throughout the study area. Rural analyses were conducted in Segments 1, 2 and 5. Urban analyses were conducted in Segments 3 and 4.

The existing rural LOS for MT-35 vary from Level D to E depending on the particular segment. This reflects the current conditions:

- ✓ Narrow traffic lanes, shoulders, and clear zones
- ✓ Passing provisions
- ✓ The directional distribution of traffic
- ✓ The percentage of truck traffic

In the urbanized areas (Segments 3 and 4), both signalized and unsignalized analyses were completed. Results from all of the analyzed locations are shown in **Figure 1-6** and ranged from LOS A to C. These LOS are considered acceptable. Side street approaches to the Bridge Street intersection are prone to operate at a low LOS due to the following conditions:

- ✓ Limited sight distance;
- ✓ High through traffic speeds and volumes;
- ✓ Lack of turning lanes; and
- ✓ Lack of a traffic signal.

1.4 Traffic Projections

1.4.1 Projected AADT Volumes

Future AADT along MT-35 was developed for the year 2024 to assess the ability of potential improvements to meet the travel demand over an approximate 20-year planning horizon (20 years past the ready date of 2004).

Since the early 1980's, MT-35, south of SH-209 has reflected a consistent annual growth rate between 3.3 percent and 4.6 percent. The MDT maximum annual growth rate value of 3.5 percent will be applied to this section of the road. MT-35, north of SH-209, shows a slower annual growth rate since the early 1980's. Upon review of the Bigfork area land development growth potential, it is estimated that growth will likely continue at a lower rate, which can be attributed to the rate at which undeveloped land is being developed. A value of 2.5 percent annual growth is applied north of SH-209 and to all side roads to estimate future traffic volumes.

The 1999 MDT estimate of 4,890 Vehicles-per-Day (VPD) was used to develop the traffic projections in the Preliminary Field Review Report. In 1999, supplemental traffic counts were obtained within each of the five corridor segments. These 1999 traffic counts were adjusted by a seasonal factor to reflect the AADT. The average annual growth rate was then applied to the 1999 AADT project volumes for a 20-year design horizon (2024). **Table 1-4** and **Figure 1-7** summarize the projected traffic volumes and LOS for the project segments, based on the 1999 AADT and the projected annual average growth rates.

1.4.2 Peak Hour Projections

Based on the 1999 traffic observations and historic data, a peak hour percentage of 10 percent has been used to estimate peak hour volumes from AADT. To determine the design parameters for key intersections within the study area, hourly traffic turning movements observed in 1999 were coupled with the average annual growth rate, yielding year 2024 design volumes.



Figure 1-6 1999 Existing Peak Hour LOS

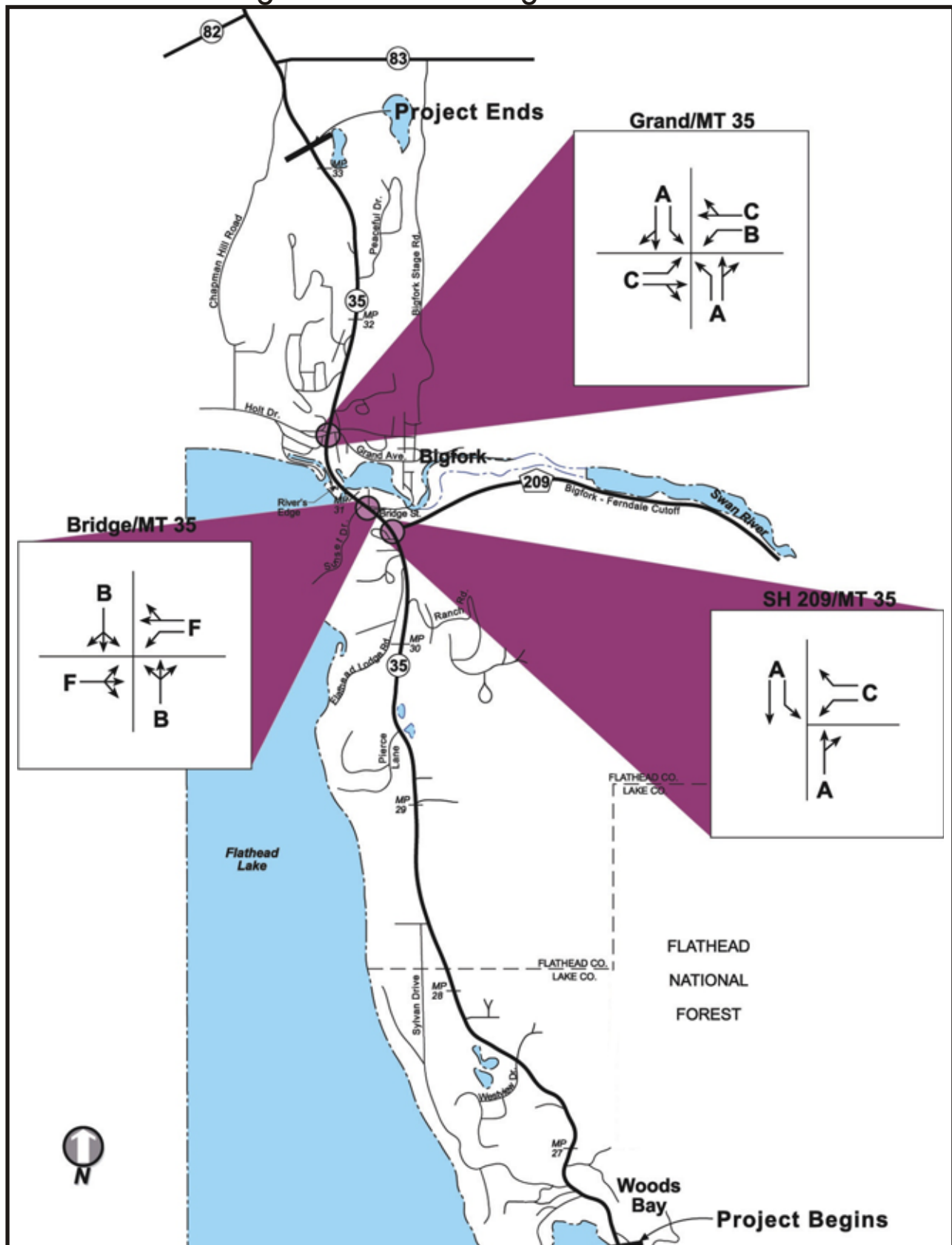




Figure 1-7 Existing Roadway with 2024 Peak Hour LOS

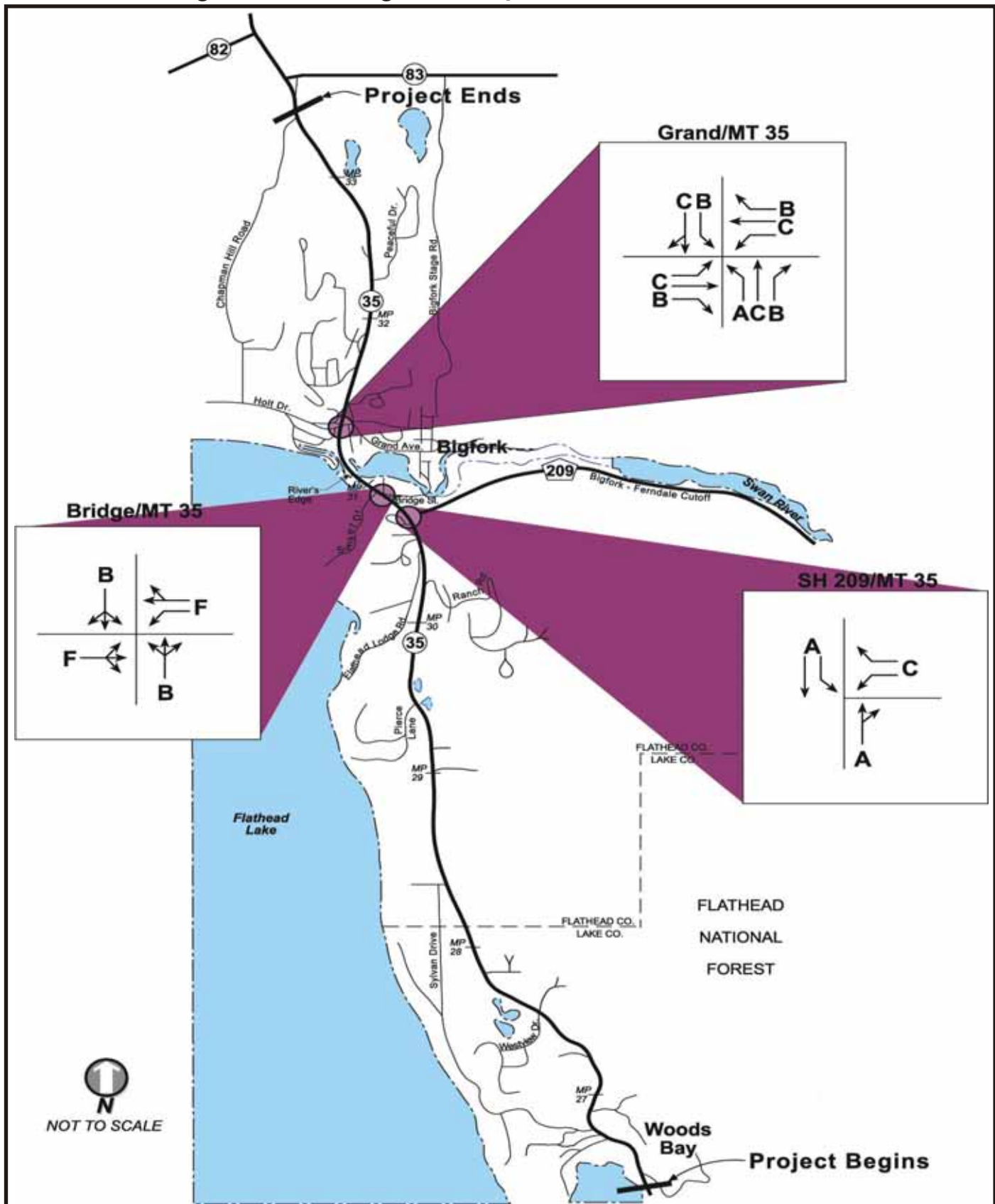




Table 1-4 Projected Traffic		
Segment	1999 AADT ¹	2024 AADT ²
	(vpd)	(vpd)
1	5,000	11,775
2	5,775	13,625
3	9,500	17,600
4	9,075	16,800
5	8,375	15,525
1-1999 Traffic counts adjusted to reflect a seasonal AADT		
2-1999 AADT increased at 3.5% or 2.5% annually		

1.4.3 Future No-Action LOS Results

Based on projected volumes and the analyses documented in the existing conditions section, future LOS analyses were completed to document projected traffic operating conditions. In the rural segments (1, 2 and 5), the LOS results decreased to LOS E for all segments. LOS results in urbanized segments (3 and 4), generally decreased by approximately one LOS (from B to C). At the Bridge Street intersection, approach LOS values remain at LOS F, as shown in **Figure 1-7**.

1.5 Safety/Crash Data

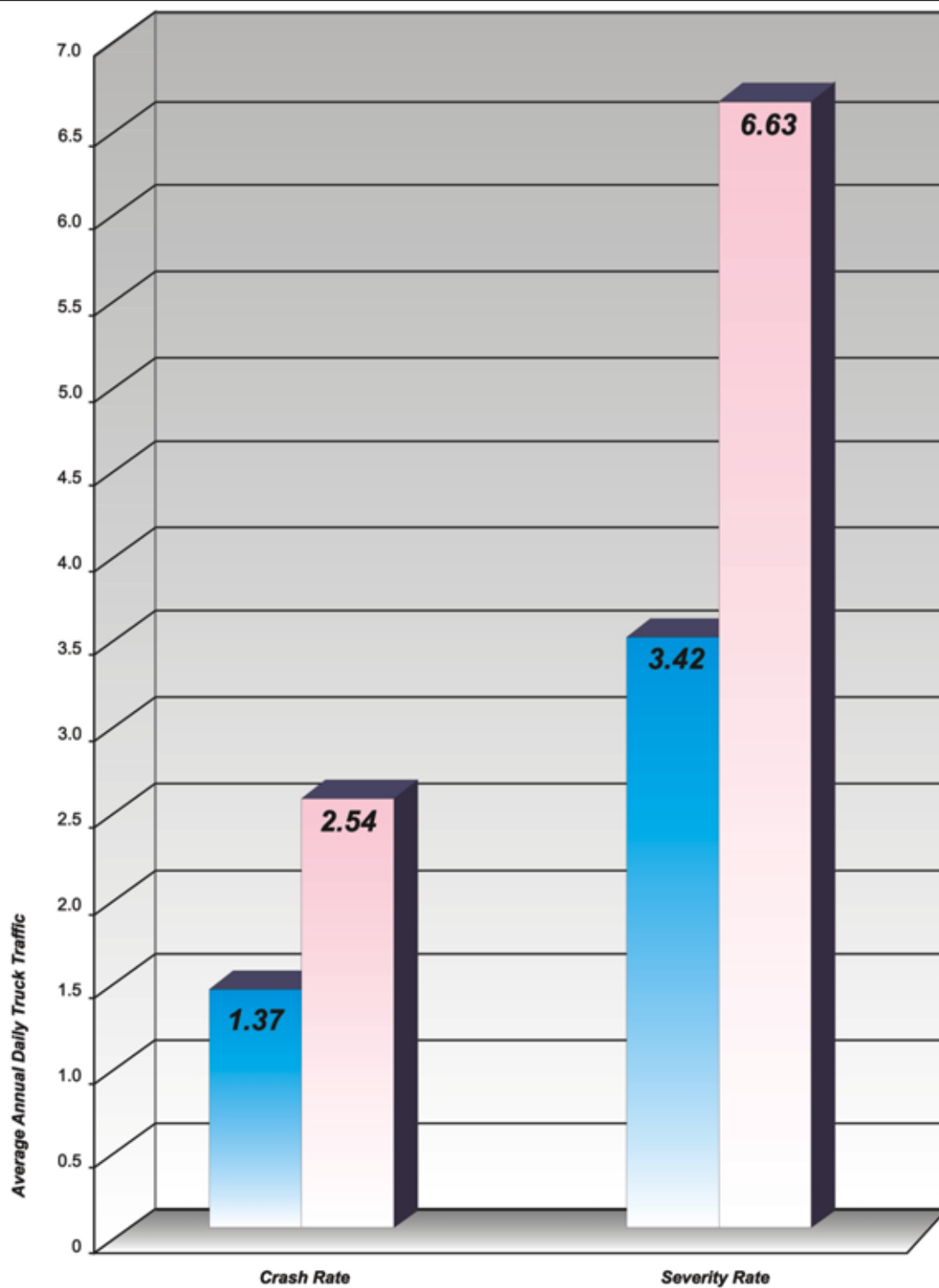
MDT collected crash data for the years 1996 through 1999. This section of MT-35 has a crash rate that is 85percent higher than the statewide average for rural primary roads, and a severity rate that is 94 percent higher than the statewide average for rural primary roads. The severity rate represents a measure that is based upon the relative severity of the total of all of the crashes reported. **Figure 1-8** illustrates the crash statistics for the three-year study period. During that time a total of 119 accidents were reported, two included fatalities. Specific analysis conducted of the crashes at intersections concluded conditions could be improved to prevent future incidents.

1.6 Local Access/Circulation

MT-35 within the study area serves as the main north-south route for both local and regional traffic. This roadway, which runs along the east side of Flathead Lake, is frequently used for travel to Glacier National Park and to the Kalispell area by visitors coming from the south. During the summer months substantial tourist travel includes recreational vehicles and automobiles. Commercial trucks also use this route as a north-south travel corridor. Local residents and visitors use this roadway frequently to access the community of Bigfork, which provides substantial services to the eastern lakeshore population. MT-35 has several residential and commercial access points and one traffic signal at the intersection of MT-35 and Grand Avenue.



Figure 1-8 Crash Statistics 1996-1999



Note: Rates are calculated based on number of accidents per million vehicle miles of travel. (1996 - 1999)

Statewide Average Rate
Corridor Rate



1.7 Roadway Deficiencies

MT-35 has several deficiencies that affect its ability to carry a growing number of vehicles safely. The roadway in the study area has the following deficiencies:

1.7.1 Inadequate Shoulder Width

Most of the study area consists of two lanes with minimal shoulder widths generally no more than 0.3-0.6 m wide (1-2 ft). The typical standard shoulder width for highways of this type and traffic is typically 2.4 m (8 ft). A 2.4 m (8 ft) width allows for a stalled vehicle to be parked on the shoulder and be clear of the traffic lane. The current lack of adequate shoulder and the lack of a recovery zone for vehicles that cross the shoulder line causes a safety hazard due to the limited opportunity for vehicles to pull over if needed. A lack of adequate shoulders contributes to the crash experience on MT-35 and can also create congestion, particularly during the busy tourist season, when traffic is forced to share one lane while maneuvering around a disabled vehicle. The effectiveness of law enforcement is also hampered by narrow shoulders as troopers have limited ability to maneuver their patrol vehicles. The shoulder width also presents additional hazards for troopers (while conducting traffic stops for law enforcement), the offending motorist, and the traveling public.

1.7.2 Clear Zone

Most of the corridor has inadequate clear zone widths. Clear zones are open areas beyond the edge of the travel lane which serve as a recovery zone for errant vehicles. Federal guidance for clear zones calls for the removal of all trees, large vegetation, power poles, boulders, or other fixed objects within the designated clear zone for safety purposes. Clear zones can also improve sight distance where viewing is restricted.

1.7.3 Sharp Curves

At several locations within the corridor, the curvature of the roadway (horizontal alignment) does not meet current design standards and is considered unsafe for the current operating speeds of traffic. These curves are inconsistent with driver expectations and the adjacent roadway geometry, and contribute to the crash experience on MT-35.

1.7.4 Passing Accommodations

A wide variety of vehicles use the MT-35 corridor on a daily basis. Travelers use MT-35 for personal errands, job related trips, commercial transport of goods, and recreational travel. The unique travel characteristics along the roadway, including the variety of vehicle types, creates an inconsistency in travel speeds. The commercial transport of goods often involves large semi-truck and trailer vehicles, particularly when associated with logging activities. Recreational vehicles use MT-35 to access popular tourist destinations such as the Flathead Lake area and Glacier National Park to the north. These larger vehicles often travel at slower speeds and the current roadway does not allow adequate opportunities for passing.

1.7.5 Local Access Character

Along the length of the proposed project there are many access points for connecting roadways, commercial locations and residential development. The character of the corridor changes from rural to commercial and the type and number of access locations varies greatly. Overall, the access points are not well defined and in some cases, do not have adequate visibility for the speeds associated with this highway. The lack of turning lanes in the corridor contributes to the crash experience at certain locations.



1.7.6 *Non-Motorized Facilities*

Currently there are no designated pedestrian/bike facilities along the corridor. Pedestrian and bicycle activities have increased along with recreational activities as the area population has grown particularly in seasonal (summer) residents. The narrow or nonexistent shoulders make walking or biking along this portion of MT-35 very dangerous. An equestrian crossing with a manually operated signal is currently in place near RP 30.

1.7.7 *School Bus Stops*

The Bigfork School District provides bus operations along MT-35 within the project study area during the morning and afternoon school commute periods. This bus service focuses on north-south operations along MT-35 that connect outlying residences with the public school complex located in Bigfork. Bus drivers use a series of designated bus stop locations. Representatives of the Bigfork School District have noted that bus operations along MT-35 are dangerous for students and drivers for several reasons:

- ▶ Minimal pedestrian facilities for students walking to and from bus stop locations along MT-35.
- ▶ High posted speed-limits on MT-35 and the lack of pedestrian crossing amenities create an unsafe condition for students crossing the highway.

1.7.8 *Parking*

MT-35 does not have specific parking areas designated, nor is parking prohibited. Some parking occurs near mailboxes along the roadway where vehicles sometimes infringe upon the main traffic lanes. During the summer months of the year (generally during cherry season), roadside vendors operate along MT-35. In this situation roadside parking occurs at cherry stands throughout the corridor. Within the commercial area in Bigfork, access points are poorly defined and shoulders and parking areas often blend. This condition can result in driver confusion and unanticipated vehicle movements.

1.7.9 *Operating Speed*

The majority of the study area has posted speed limits that range from 72.4 kph (45 mph) to 88.5 kph (55 mph). The roadway is narrow and winding, with substandard shoulder provisions. The changes in posted speeds along the corridor can result in driver confusion and cause difficulties for law enforcement. The areas of speed transition are not readily apparent to the motorists. The community has expressed many concerns regarding speeds in the corridor and is approaching the transportation commission regarding requests for changes in the posted speed limits.

1.7.10 *Mail Delivery*

Mail is currently delivered at mailboxes located on MT-35. A potentially hazardous condition is created as postal carriers stop in the lane of traffic (as far to the right as possible). The lack of shoulder to pull onto often results in the mail carriers blocking a portion of the traffic lane.



1.8 Swan River Bridge Deficiencies

The existing Swan River Bridge on MT-35 was built in 1954 and is comprised of steel plate girders with a noncomposite concrete deck. The bridge is a four-span design and includes two short end spans that cantilever from the outer bents. The total bridge length is 67 m (220 ft). The clear roadway width is 8.5 m (28 ft) and carries two lanes of traffic with 0.6 m (2 ft) shoulders. The existing ground slopes underneath the bridge and into the water at a rate of approximately 1½:1. The slopes are covered with riprap under the bridge on the downstream side of the bridge.

Based on the structure inventory reports from MDT, the current condition of the Swan River Bridge is poor. The general condition of the bridge is rated at about five out of a possible ten in most categories, with an overall sufficiency rating of 49.6. This rating qualifies the bridge for replacement. Several areas needing attention include:

- ▶ The deck has excessive cracking, allowing water to penetrate and damage the substructure components.
- ▶ Damage to the existing girders has occurred where water has penetrated the paint and caused corrosion.
- ▶ The existing bearing devices are out of alignment and need to be repaired.
- ▶ There are no facilities for pedestrians or bicycles on the bridge.
- ▶ There are currently no expansion devices and the back walls at the abutments are cracking and spalling due to the expansion of the steel girders.
- ▶ There are no approach slabs and each end of the structure has a noticeable bump in the road surface due to settlement.
- ▶ The bridge parapet does not meet current AASHTO standards and should be replaced with an updated crash tested rail.
- ▶ The bridge is founded on untreated timber piling of unknown condition.
- ▶ The bridge structure does not meet current seismic standards and is in a relatively high seismic zone.



1.9 Segment Road Description & Needs

The character of the corridor varies considerably over the project length. To consider the needs of the entire project adequately, the corridor was divided into segments that exhibit similar geographic or transportation characteristics. The existing characteristics and needs of each of the road segments are summarized below.

1.9.1 Segment 1 (RP 26.3 to RP 27.1), Woods Bay to Woods Bay Hill

This highway segment starts at the south end of the project in the community of Woods Bay (see **Figure 1-9a**), extends north up the Woods Bay Hill, and ends at RP 27.1. This segment was added to the project to address concerns raised at the first public workshop in December 1999. The specific concerns that were cited centered on overall roadway safety and trucks stalling on the hill during icy conditions. The public noted that the highway has been closed for extended periods due to stalled trucks in inclement weather. As shown in **Figure 1-9b** this segment has the following needs:

- ▶ Turning lanes to provide for left-turning vehicles at access points.
- ▶ Roadway improvements to allow traffic to pass stalled vehicles on Woods Bay Hill.
- ▶ Wider shoulders for errant and disabled vehicles.
- ▶ Clear zone improvements to reduce fixed object crashes and improve sight distances.
- ▶ Provisions for non-motorized travel where residents and tourists walk and bike along the roadway.
- ▶ Access management:
 - Driveway approach definition and consolidation.
 - Driveway approach improvements.
- ▶ Intersection improvements with enhanced traffic control measures.
- ▶ Horizontal and sight distance improvements to the curve at the top of Woods Bay Hill.

1.9.2 Segment 2 (RP 27.1 to RP 30.7), Woods Bay Hill to SH-209

This segment of MT-35 is rural with low-density residential development (see **Figure 1-10a**). Several horizontal and vertical curves do not meet the criteria for the 88.5 kph (55 mph) speed currently posted. Warning signs alert drivers of sharp curves at specific locations. There are scattered access points along this segment with varying angles to the main road. As shown in **Figure 1-10b**, the needs identified for this segment include:

- ▶ Increased designated passing zones.
- ▶ Wider shoulders for errant vehicles.
- ▶ Clear zone improvements to reduce fixed object crashes and improve sight distances.
- ▶ Space outside of travel lanes for mail delivery.
- ▶ Alignment improvements to provide consistency for drivers.
- ▶ Intersection improvements with enhanced traffic control measures.
- ▶ Provisions for non-motorized travel where residents and tourists walk and bike along the roadway.
- ▶ Access management:
 - Driveway approach definition and consolidation.
 - Driveway approach improvements.
- ▶ Safety improvements at equestrian crossing.



Figure 1-9a Segment 1 Characteristics

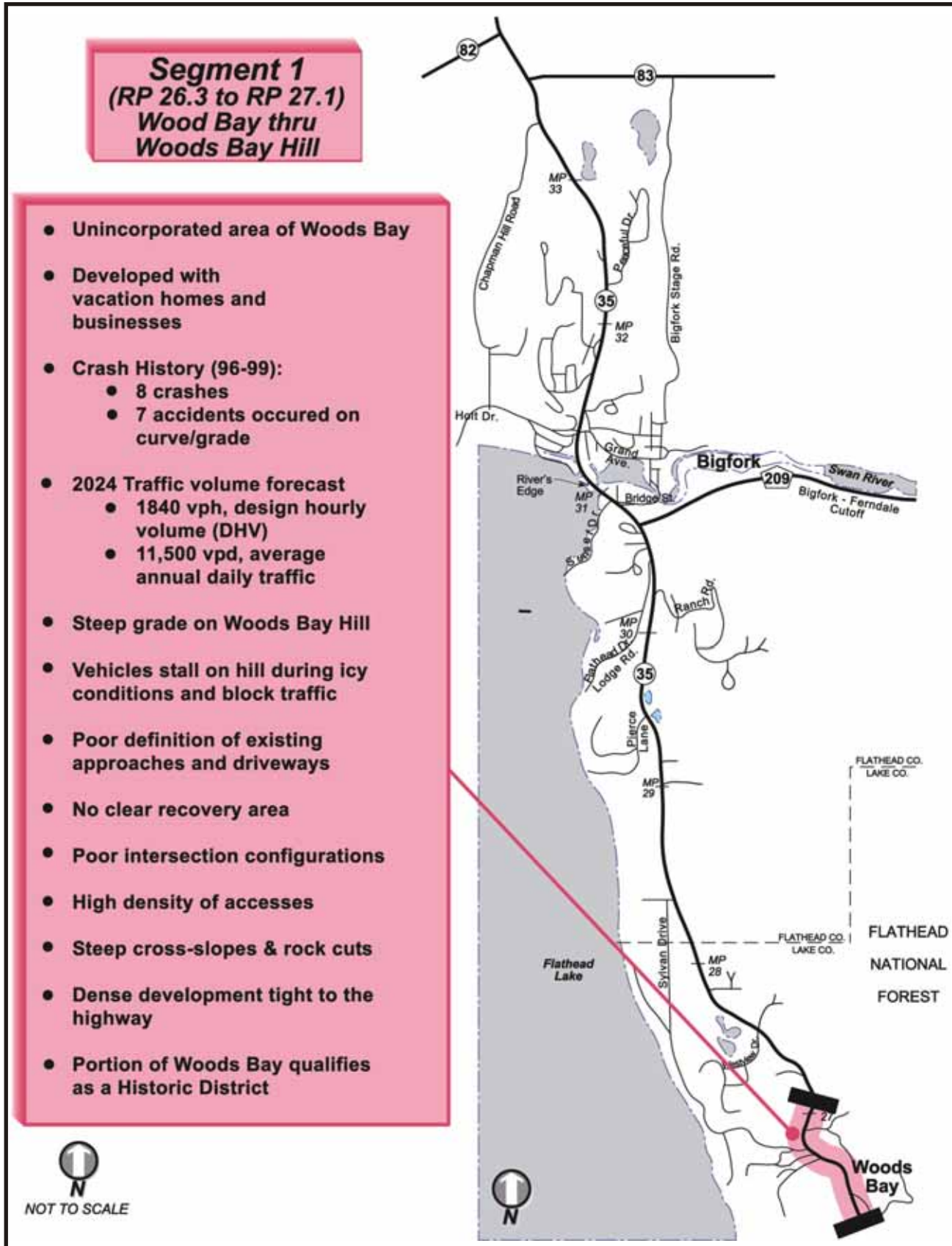




Figure 1-9b Segment 1 Needs

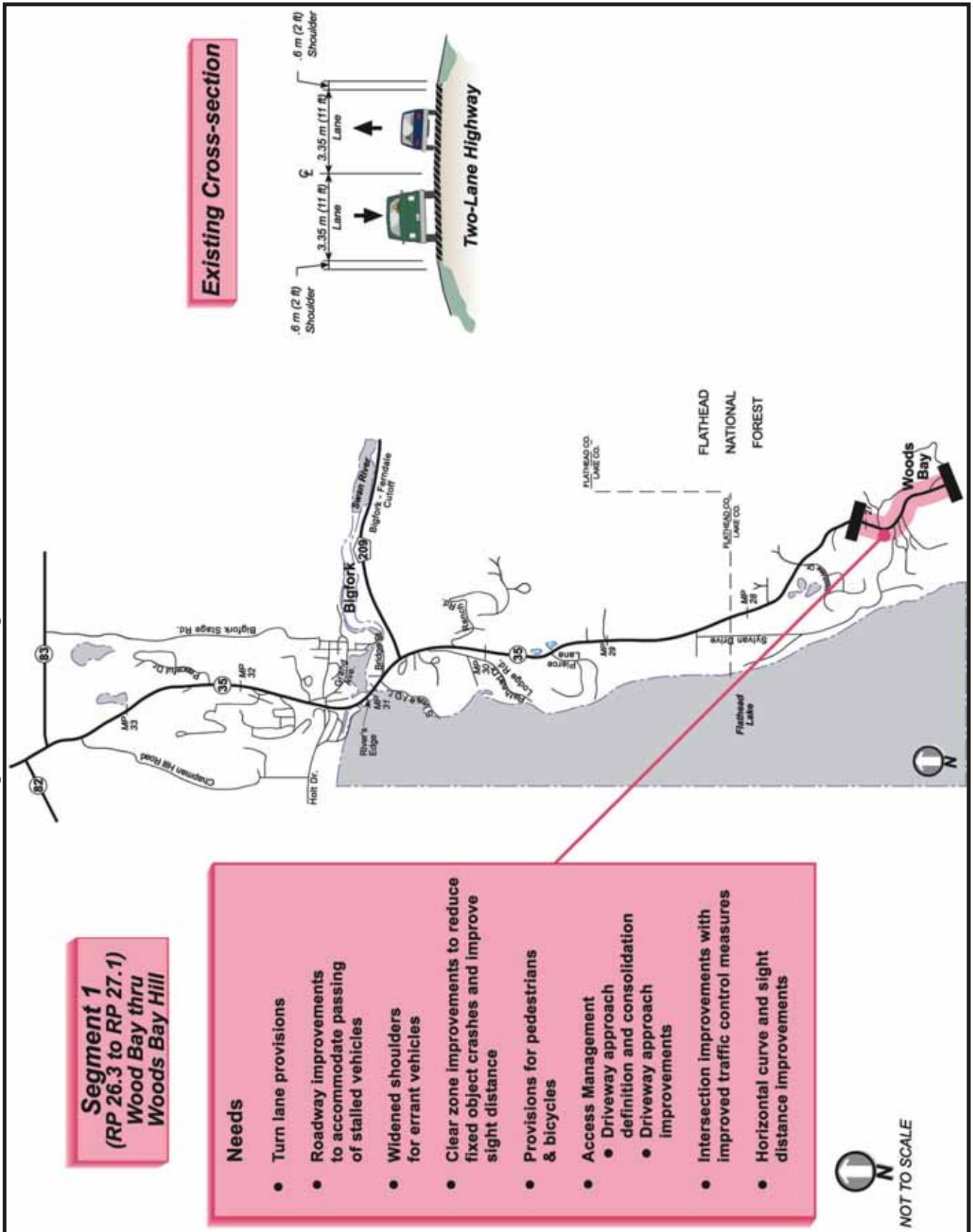




Figure 1-10a Segment 2 Characteristics

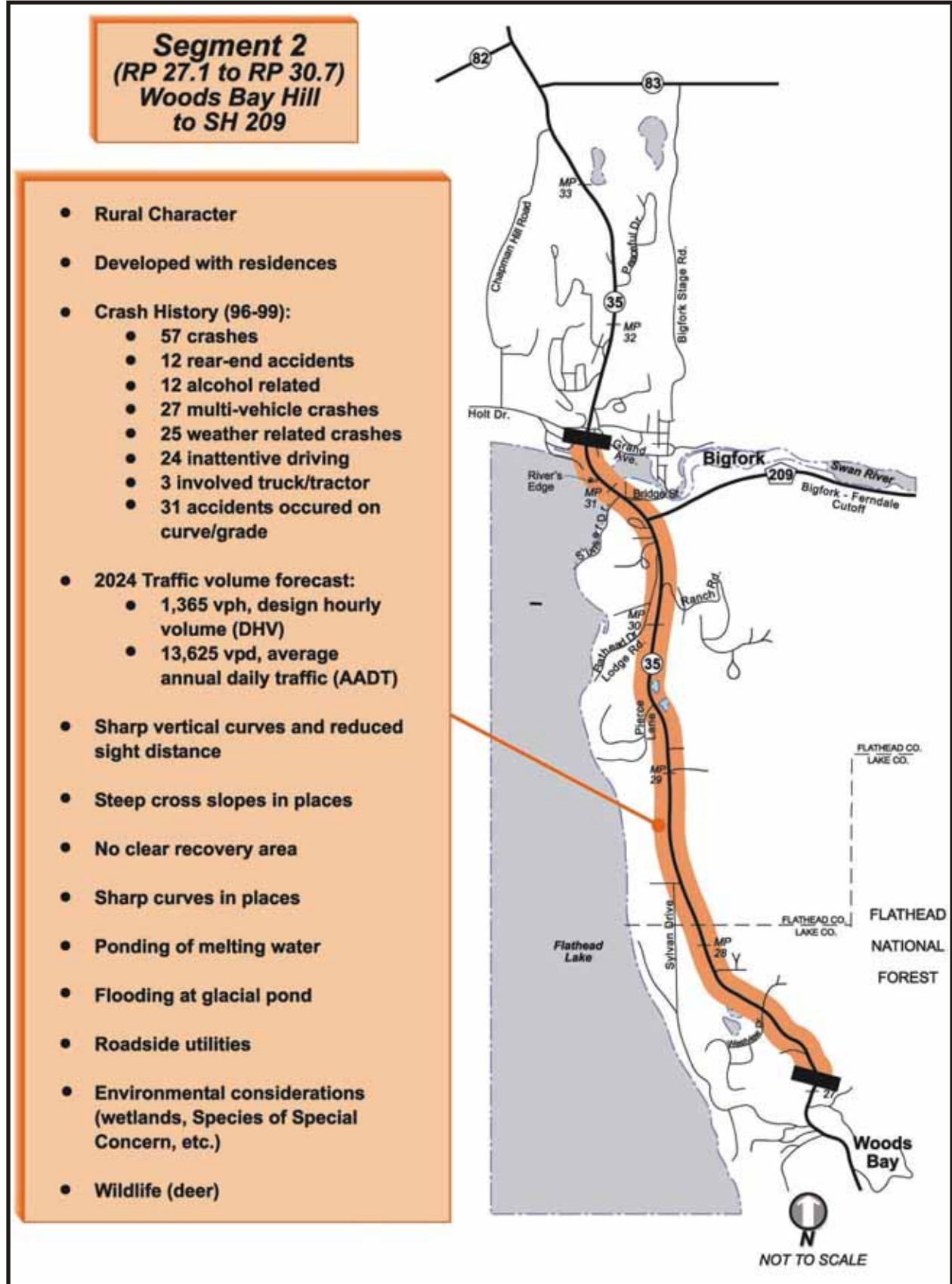
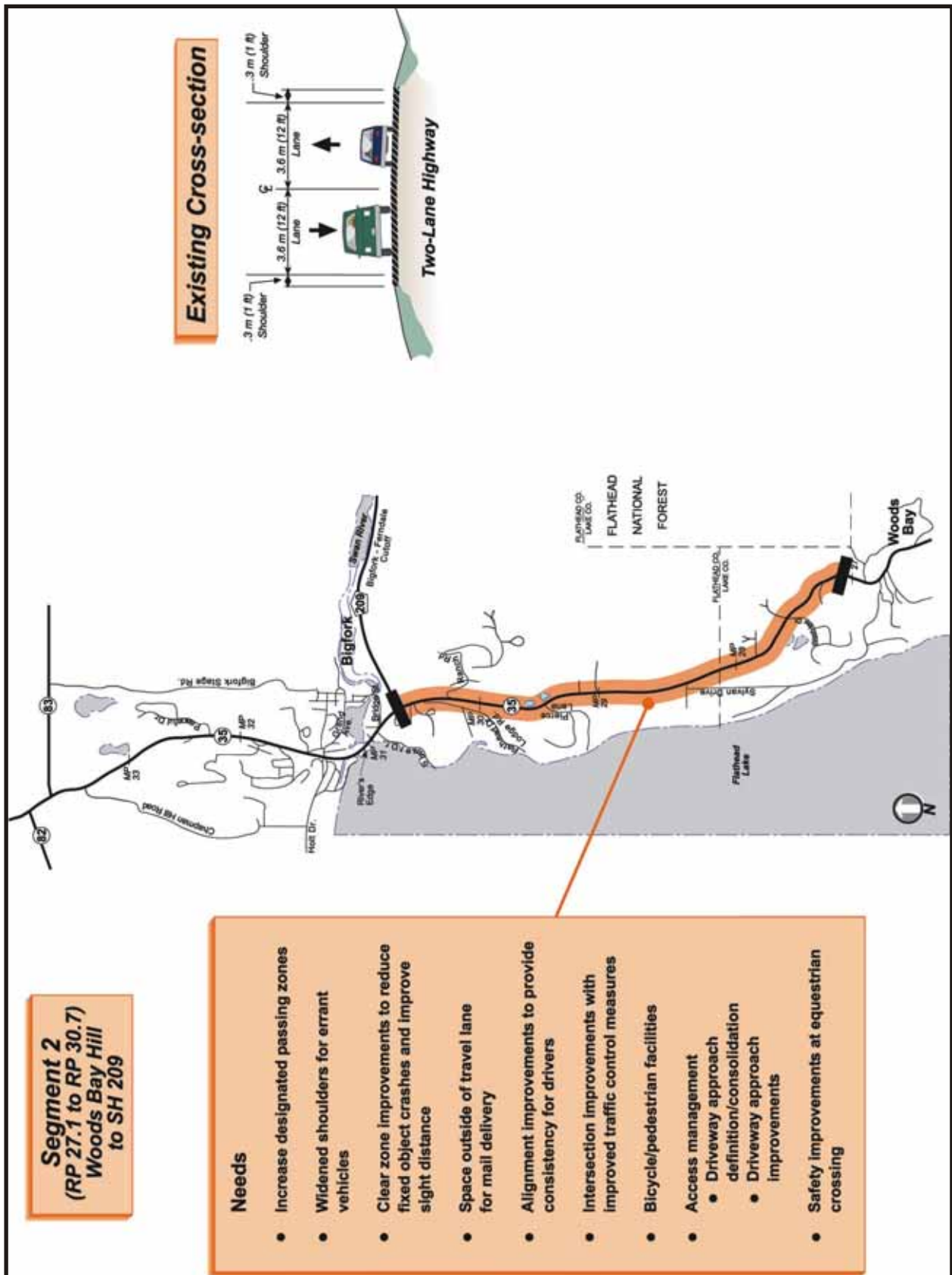




Figure 1-10b Segment 2 Needs





1.9.3 Segment 3 (RP 30.7 to RP 31.1), SH-209 to Grand Avenue

This segment of the highway transitions from rural character to the urbanized area of Bigfork and includes the Swan River Bridge (see **Figure 1-11a**). The density of development increases through this segment with both increased residential development and commercial development. Traffic volumes on this segment increase from south to north and there is one high accident area at the intersection of MT-35 and Bridge Street/Sunset Drive. As shown in **Figure 1-11b**, the needs identified for this segment include:

- ▶ Turning lanes to provide for left-turning vehicles at access points.
- ▶ Wider shoulders for errant vehicles.
- ▶ Clear zone improvements to reduce fixed object crashes.
- ▶ Provisions for pedestrians and bicyclists.
- ▶ Access management.
 - Driveway approach definition and consolidation.
 - Driveway approach improvements.
- ▶ Intersection improvements with enhanced traffic control measures.
- ▶ Improved traffic control.

Swan River Bridge Improvements:

- ▶ Increase the life and seismic performance standards of structure.
- ▶ Provisions for pedestrians and bicyclists.
- ▶ Wider shoulders for errant vehicles.

1.9.4 Segment 4 (RP 31.1 to RP 32.5), Grand Avenue to Ice Box Canyon

This segment comprises the urbanized area of Bigfork (see **Figure 1-12a**) including the signalized intersection with Grand Avenue, which is the main entrance into the downtown area of Bigfork. This segment is characterized by commercial development along its entire length. As shown in **Figure 1-12b**, the needs for operational improvements to this segment include:

- ▶ Roadway improvements with turn lane provisions to achieve expected operational character.
- ▶ Provisions for pedestrians and bicyclists.
- ▶ Intersection improvements with enhanced traffic control measures.
- ▶ Access management.
 - Driveway definition and consolidation.
 - Driveway approach improvements.

Grand Avenue Intersection:

- ▶ Provisions for pedestrian and school crossing.
- ▶ Improve traffic controls.
- ▶ Improve traffic channelization.
- ▶ Improve alignment with road to Marina.



Figure 1-11a Segment 3 Characteristics

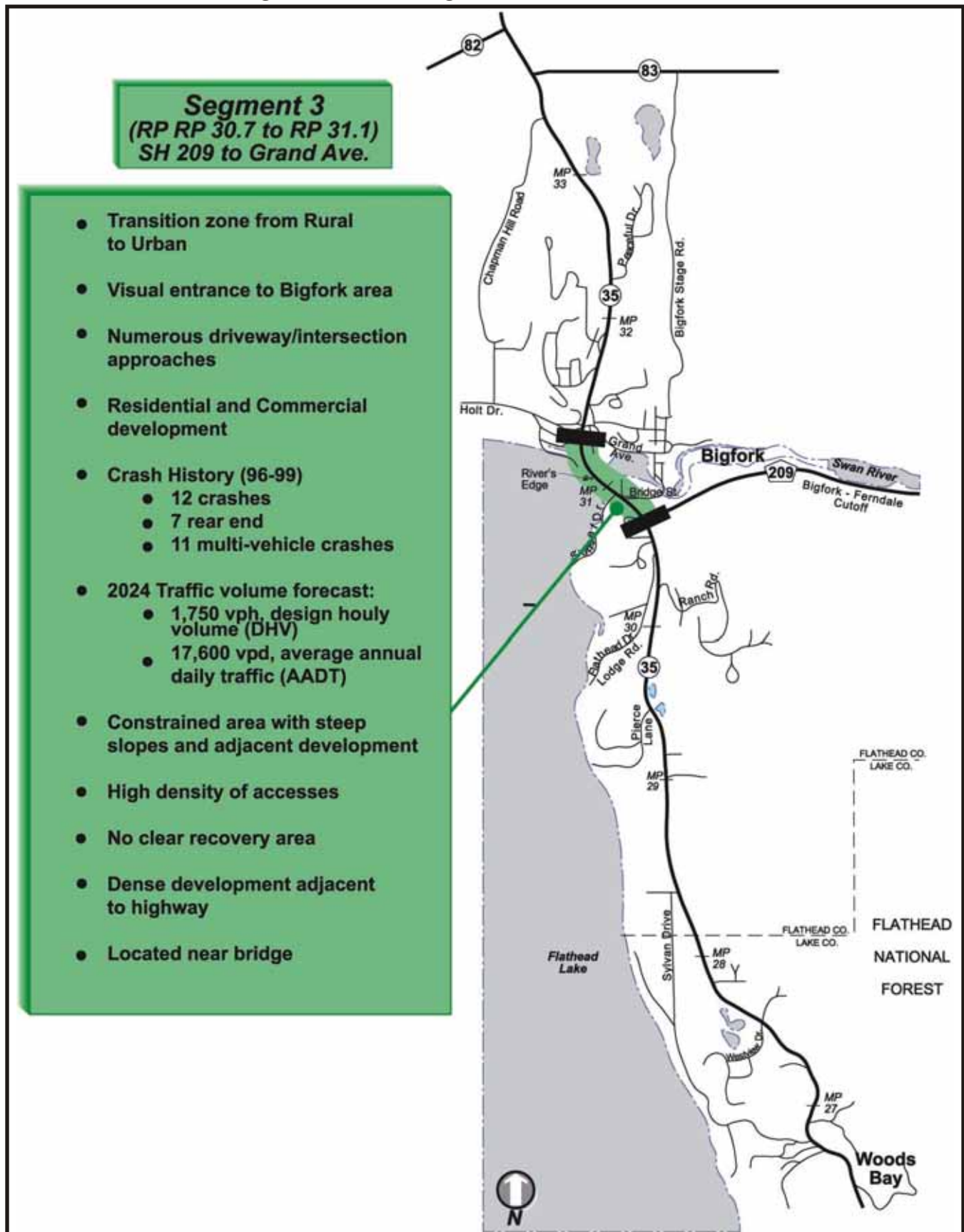




Figure 1-11b Segment 3 Needs

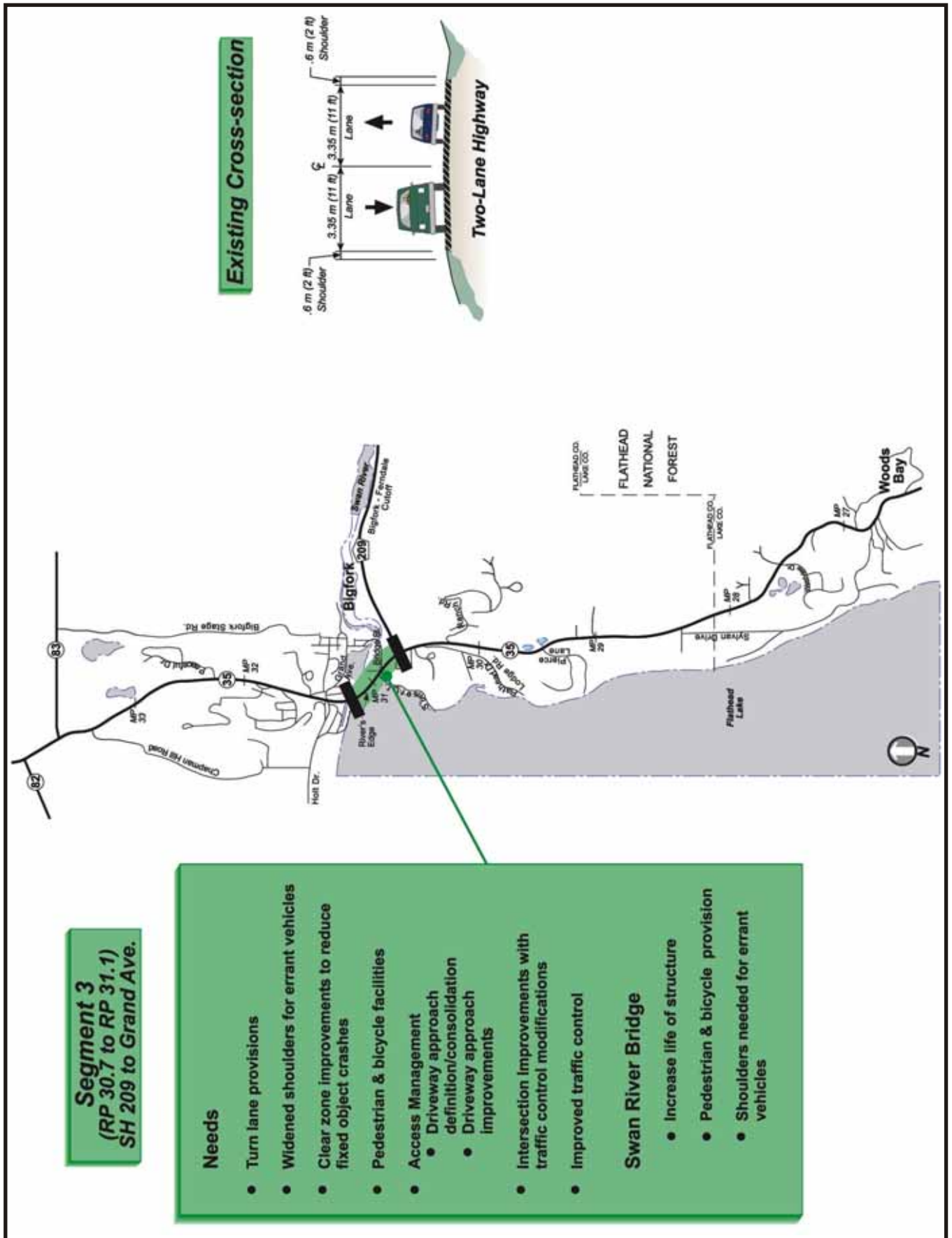




Figure 1-12a Segment 4 Characteristics

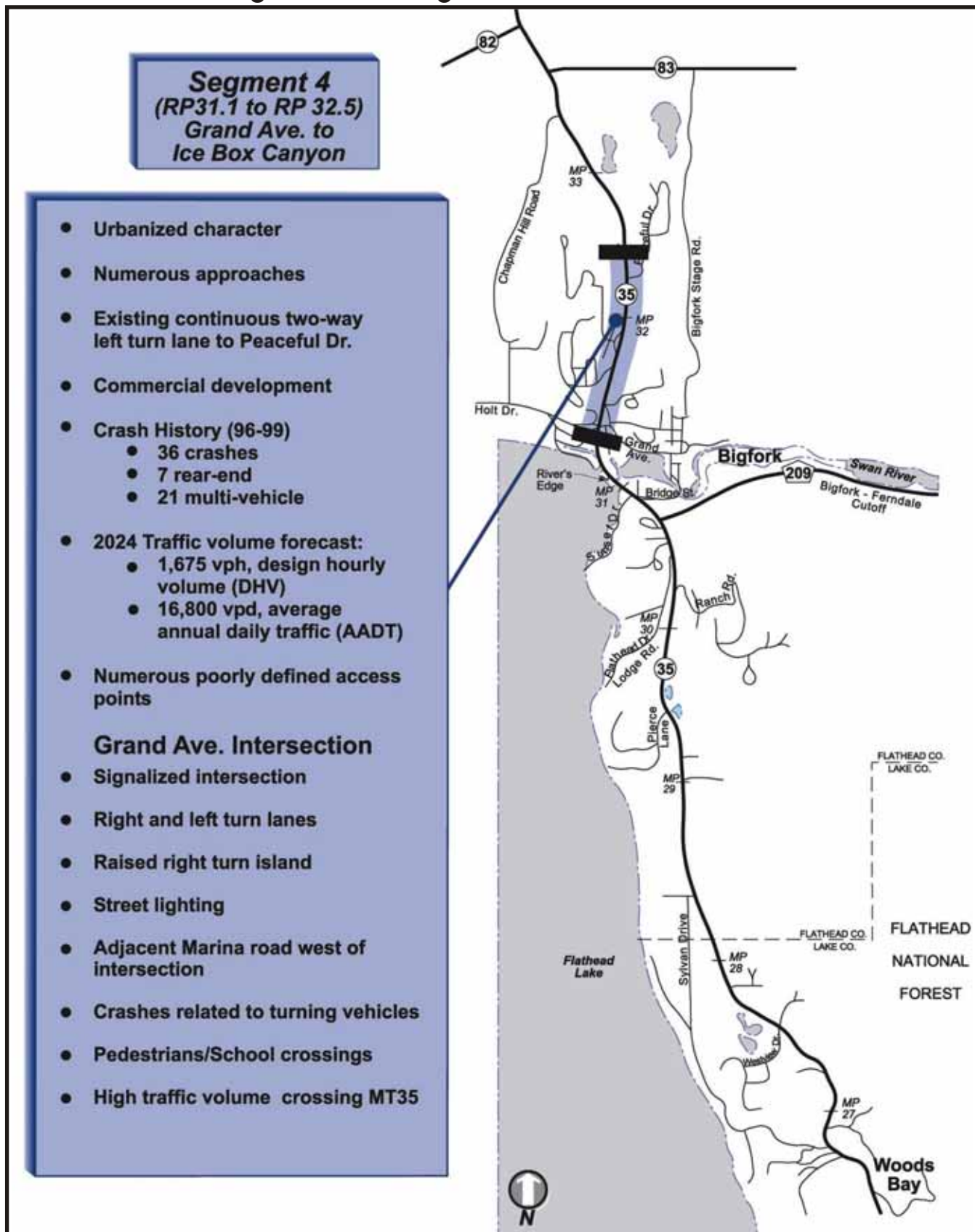
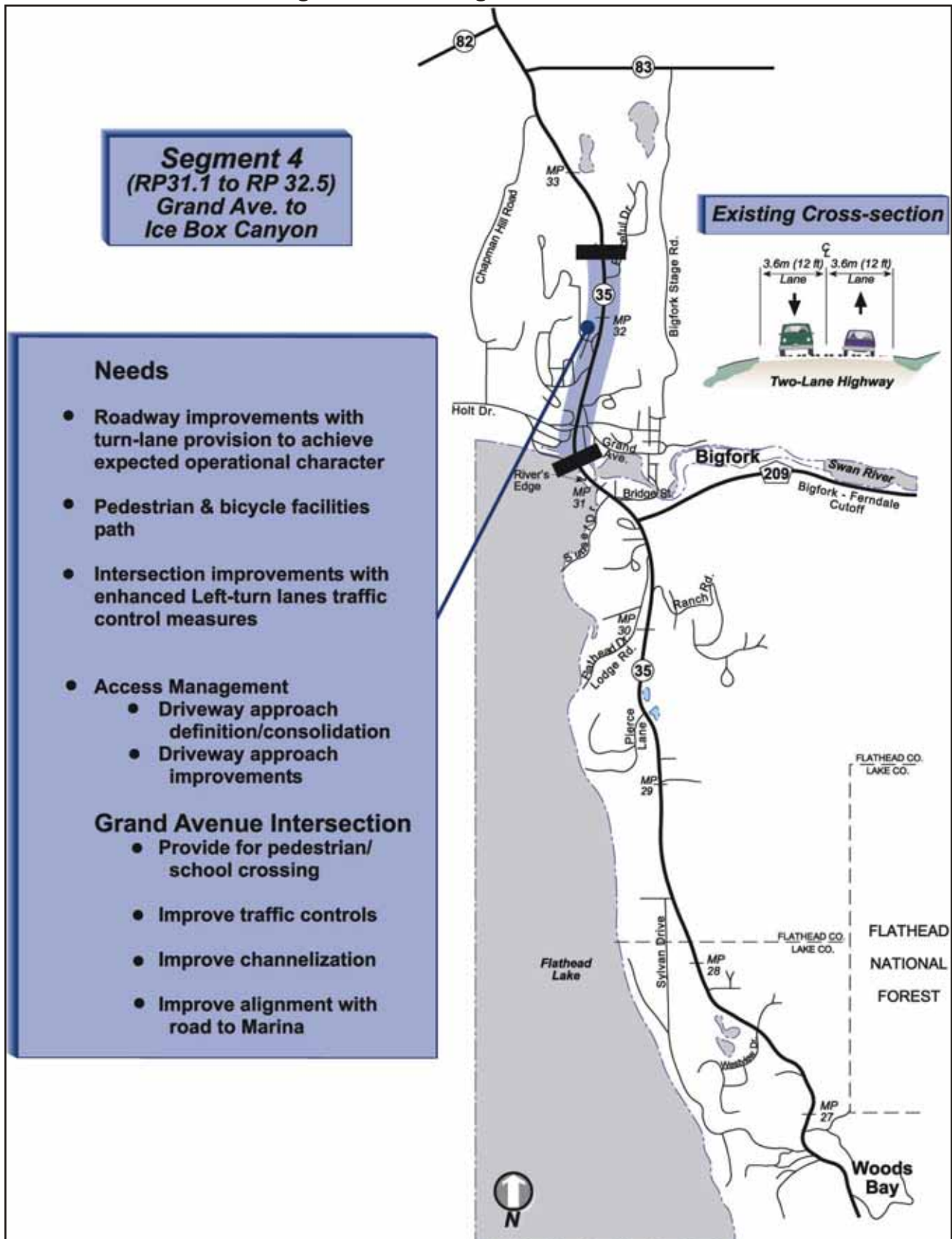




Figure 1-12b Segment 4 Needs





1.9.5 Segment 5 (RP 32.5 to RP 33.3), Ice Box Canyon to the End of Project

Ice Box Canyon marks the end of the urbanized area of Bigfork (see **Figure 1-13a**). This segment is rural, with lower density development. Ice Box Canyon is a shaded area where icy conditions are frequently encountered in winter months. One curve is deficient and will require realignment, as well as visibility and safety improvements. As shown in **Figure 1-13b**, the needed design improvements in this segment include:

- ▶ Improve roadway alignment at the existing sharp curve in Ice Box Canyon.
- ▶ Clear zone improvements to reduce fixed object crashes and improve sight distances.
- ▶ Wider shoulders for errant and disabled vehicles.
- ▶ Left turn lane at Chapman Hill Road.
- ▶ Bicycle accommodations.
- ▶ Access management.
 - Driveway approach definition and consolidation.
 - Driveway approach improvements.



Figure 1-13a Segment 5 Characteristics

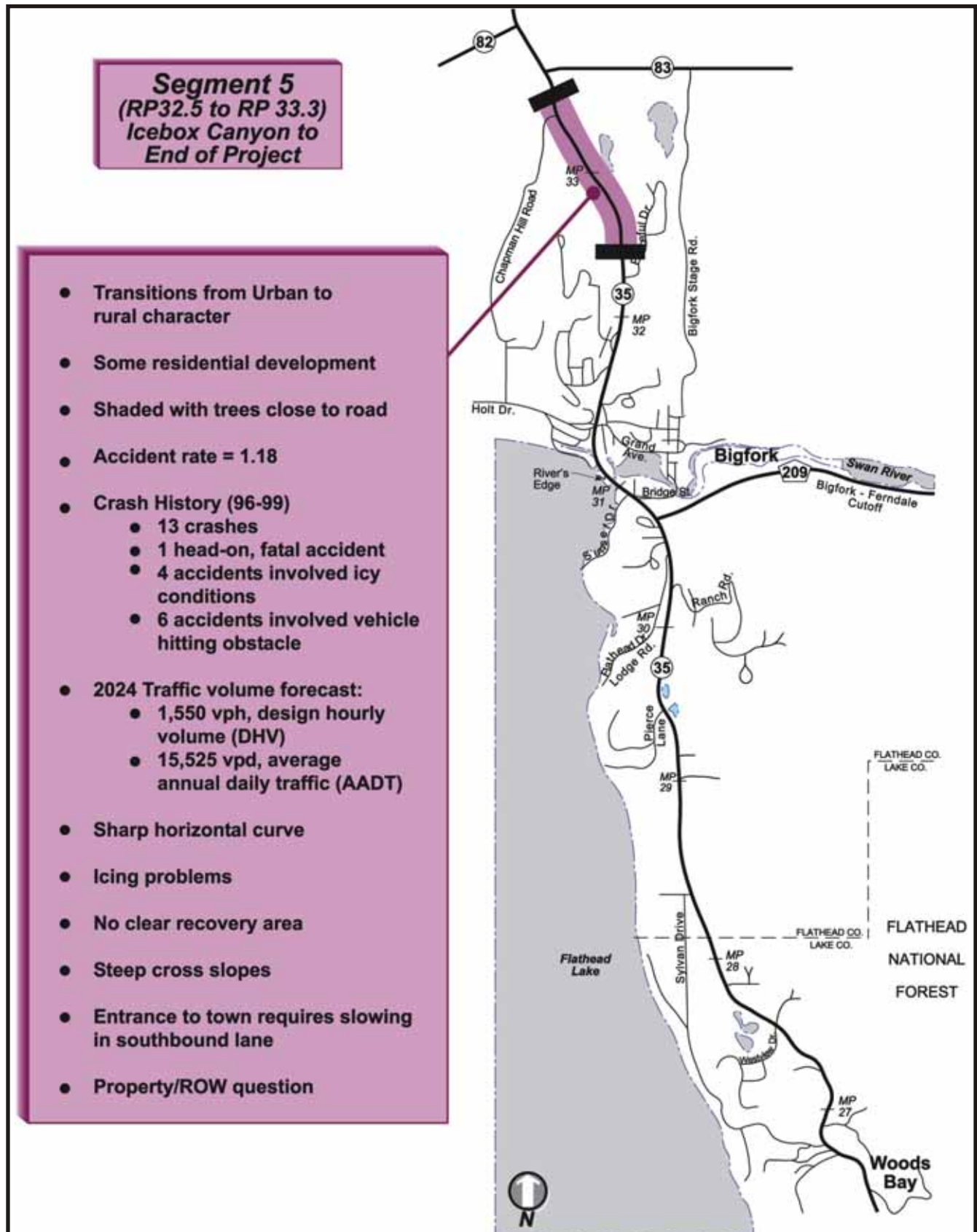
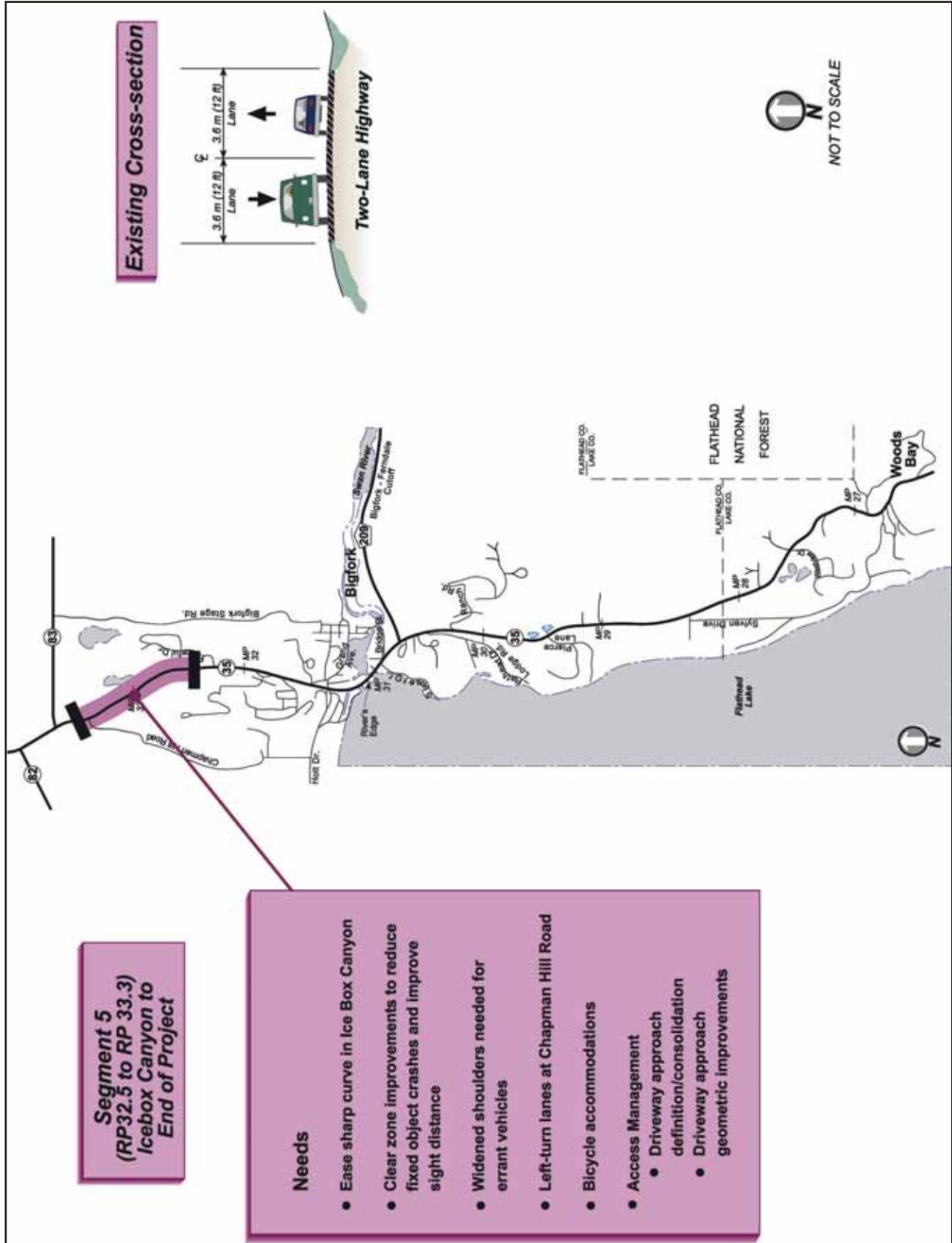




Figure 1-13b Segment 5 Needs





1.10 Relationship to Transportation Planning

MDT categorizes roadways by the state system. Each roadway has a functional classification. This section of MT-35 is classified as a minor arterial.

The Montana Transportation Commission has adopted the Montana Department of Transportation Geometric Design Standards (standards). The standards establish requirements for the National Highway System (NHS) (i.e., interstates and principal arterials) and the surface transportation program (i.e., highways and other designated roadways that are not NHS routes). Contained in the standards is the Route Segment Plan (segment plan) that identifies requirements for segments of the state system. The segment plan suggests that MT-35 should have a 9.1 m (30 ft) surface width south of the Lake/Flathead county line. For a two-lane highway, this width will provide for two 3.6 m (12 ft) traffic lanes and a shoulder width of 1.2 m (4 ft) on each side. North of the Lake/Flathead county line, the segment plan calls for a minimum 12.0 m (40 ft) width. For a two-lane highway, this provides for two 3.6 m (12 ft) traffic lanes and a shoulder width of 2.4 m (8 ft) on each side. Additional roadway width elements can be added to address specific capacity or operational needs.

Several studies have been completed that examined either this corridor specifically or provided relevant data about the corridor in a larger context. The following material provides a summary of the reports from these past study efforts. Relevant information from these previous studies was used in this work effort.

1.10.1 Flathead Lake East Shore/West Shore Corridor Study (1993)

This transportation study was completed in 1993 to develop a factual database for use in future decision making for the east and west shore highways around Flathead Lake. Robert Peccia and Associates conducted this study and prepared the final report for MDT. Data gathered as part of this project was intended to provide a basis for reaching an agreement on conditions, use, and other issues related to the transportation corridor.

1.10.2 Preliminary Field Review Report (1999)

MDT prepared a Preliminary Field Review Report in early 1999 for the Bigfork North & South project. This report provides information on project location/limits, study area physical characteristics, traffic, crash history, major design features, right-of-way, and environmental considerations.

1.10.3 MDT Signing Project (2000)

MDT has recently completed a project for resigning portions of MT-35. This project was constructed in 2000. The results were used as the existing conditions for the design of the Bigfork North & South project.

1.11 Economic Development

Residential, business, and general traffic volume has increased in the corridor over the past ten years. The community of Bigfork has experienced growth in commercial establishments that contribute to the variety of vehicular movements occurring in that area. The level of tourist activity has also experienced new growth.



1.12 Summary of Purpose & Need

The primary purpose and need for the proposed project can be summarized as follows:

- Address the operational and safety issues associated with alignment deficiencies.
- Address the operational and safety issues for slow or disabled vehicles, associated with steep grades.
- Address the need for facilities for non-motorized mobility and safety for pedestrians and bicyclists along the corridor.
- Address safety concerns associated with lack of adequate shoulders and clear zones.
- Address operational and safety deficits associated with poor definition and design of access points.
- Upgrade the Swan River Bridge to meet seismic and safety standards, provide for pedestrian and bicycle movements, and the continued life and function of the bridge.
- Address the deteriorating condition of the roadway pavement and the bridge structure.



Chapter Two: Alternatives Considered

2.1 Alternative Development

The alternative development process considered the varied characteristics and needs within the corridor. Alternatives were designed to address the different needs and characteristics of each of the corridor segments described in Chapter One: Purpose and Need. All of the alternatives follow the existing alignment, except variations that occur where adjustments are needed to correct alignment deficiencies, safety problems, or operational issues. The alternatives included several corridor elements:

- Non-Motorized Facilities for bicycle, pedestrian, or equestrian uses;
- Cross-section options for each segment;
- Traffic control and intersection options;
- Bridge options at the Swan River Crossing; and
- Design options to provide a solution that is sensitive to the context of MT-35, Bigfork, Woods Bay, and the environment.

The development of alternatives was conducted in collaboration with stakeholders and the community. This public involvement process is described in Chapter Four: Comments & Coordination. As alternatives were developed, a plan was implemented, and included the following steps:

1. Identify the Purpose and Need (documented in Chapter One).
2. Brainstorm and conceptualize ideas to address the needs.
3. Refine ideas into design options by section.
4. Evaluate and compare the design options.
5. Eliminate design options from further consideration based on the evaluation. Forward those to be advanced to the Preferred Alternative.
6. Create a Preferred Alternative.

2.2 Design Options Considered

Alternatives were considered for all of the elements of the Purpose & Need. Since segments of the project vary in character and function, an analysis of the alternatives was conducted for each segment described in Chapter One. During the initial stages of the analysis, the alternatives considered were called “design options.” This section presents an analysis of the design options and describes why some were advanced and others were screened from further consideration.



2.2.1 Segment 1, Woods Bay to Woods Bay Hill.

The elements of the design options for Segment 1 are shown in **Figure 2-1**. Evaluations are detailed in **Figure 2-2**.

- ☒ No-Action. The No-Action Alternative is considered and evaluated through the Environmental Assessment.
- ☒ Design Option A. This design option includes two 3.6 m (12 ft) traffic lanes, a 1.2 m (4 ft) shoulder on the east side of the highway and a widened 3.0 m (10 ft) shoulder on the west side of the highway to allow for a multipurpose path separated by a painted divider. A variation of this option was **forwarded** in the Preferred Alternative for the portion of Segment 1 from Driftwood Lane to the base of Woods Bay Hill. The Preferred Alternative differs from this design option by incorporating a separated 1.8 m (6 ft) walking path instead of a widened shoulder.
- ☐ Design Option B. This design option includes two 3.6 m (12 ft) lanes, a 2.4 m (8 ft) shoulder on both sides of the highway, curb and gutter, and a 1.5 m (5 ft) sidewalk. The 2.4 m (8 ft) shoulders provide enough overall width for passing stalled vehicles. The curb-and-gutter was considered instead of a ditch to reduce the width of the cross-section. This alternative was **not forwarded** for further consideration due to the following factors: 1) The community is opposed to sidewalk, curb-and-gutter because it is inconsistent with the rural context; 2) The use of curb-and-gutter will concentrate storm drainage into a point discharge, where contaminants are concentrated. Water quality and point discharge of storm water was of concern adjacent to Flathead Lake. Additionally, available water treatment sites are extremely limited.
- ☒ Design Option C. This design option includes two 3.6 m (12 ft) traffic lanes, a 3.6 m (12 ft) two-way left-turn lane, a 1.2 m (4 ft) shoulder on the east side of the highway, and a wider 6.1 m (20 ft) shoulder on the west side of the highway to allow for a 1.5 m (5 ft) multipurpose path separated by a painted divider. It was **forwarded** to the Preferred Alternative for the segment beginning at the base of Woods Bay Hill to Redgate Road.

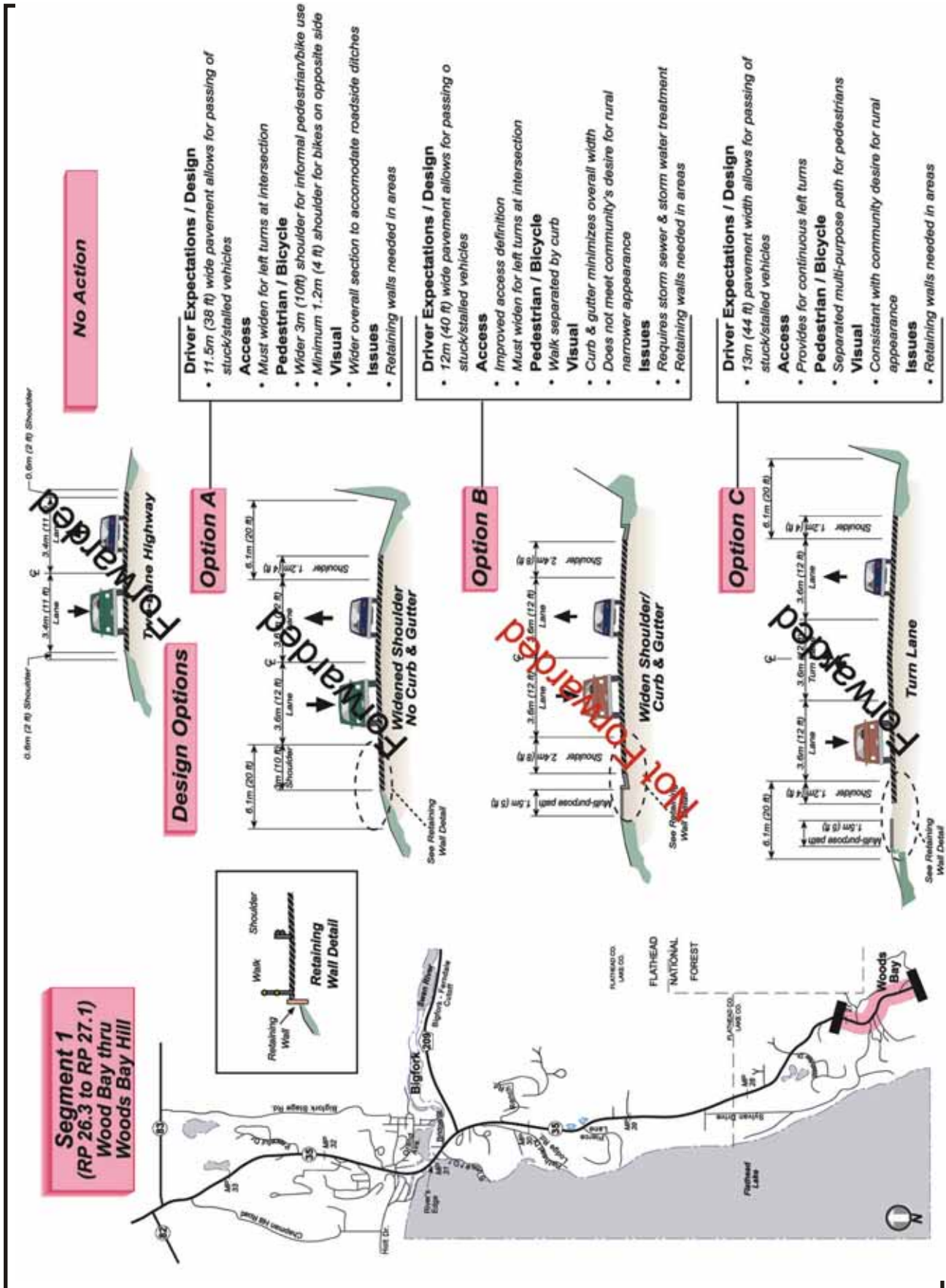
2.2.2 Segment 2, Woods Bay Hill to SH-209

The elements of the design options for Segment 2 are shown in **Figure 2-3**. Evaluations are detailed in **Figure 2-4**.

- ☒ No-Action. The No-Action Alternative is considered and evaluated through the Environmental Assessment.
- ☐ Design Option A. This design option includes two 3.6 m (12 ft) traffic lanes, and 2.4 m (8 ft) shoulders. Due to community concerns about the width of the pavement surface and overall cross-section, this alternative was **not forwarded** for further consideration. Additionally, the public expressed the need for a separated pathway for bikes, walking, and equestrian use.
- ☐ Design Option B. This design option includes two 3.6 m (12 ft) traffic lanes, 2.4 m (8 ft) shoulder on the both sides of the highway, and a separated 2.4 m (8 ft) multipurpose path on one side of the highway. This alternative was **not forwarded** for further consideration due to community concerns regarding the width of the roadway pavement surface.
- ☒ Design Option C. This design option includes two 3.6 m (12 ft) traffic lanes, 1.2 m (4 ft) paved shoulders joining 1.2 m (4 ft) turf shoulders on both sides of the highway, and a separated 2.4 m (8 ft) multipurpose path on one side of the highway. This alternative was **forwarded** to the Preferred Alternative.



Figure 2-1 Segment 1 Design Options
Woods Bay to Woods Bay Hill



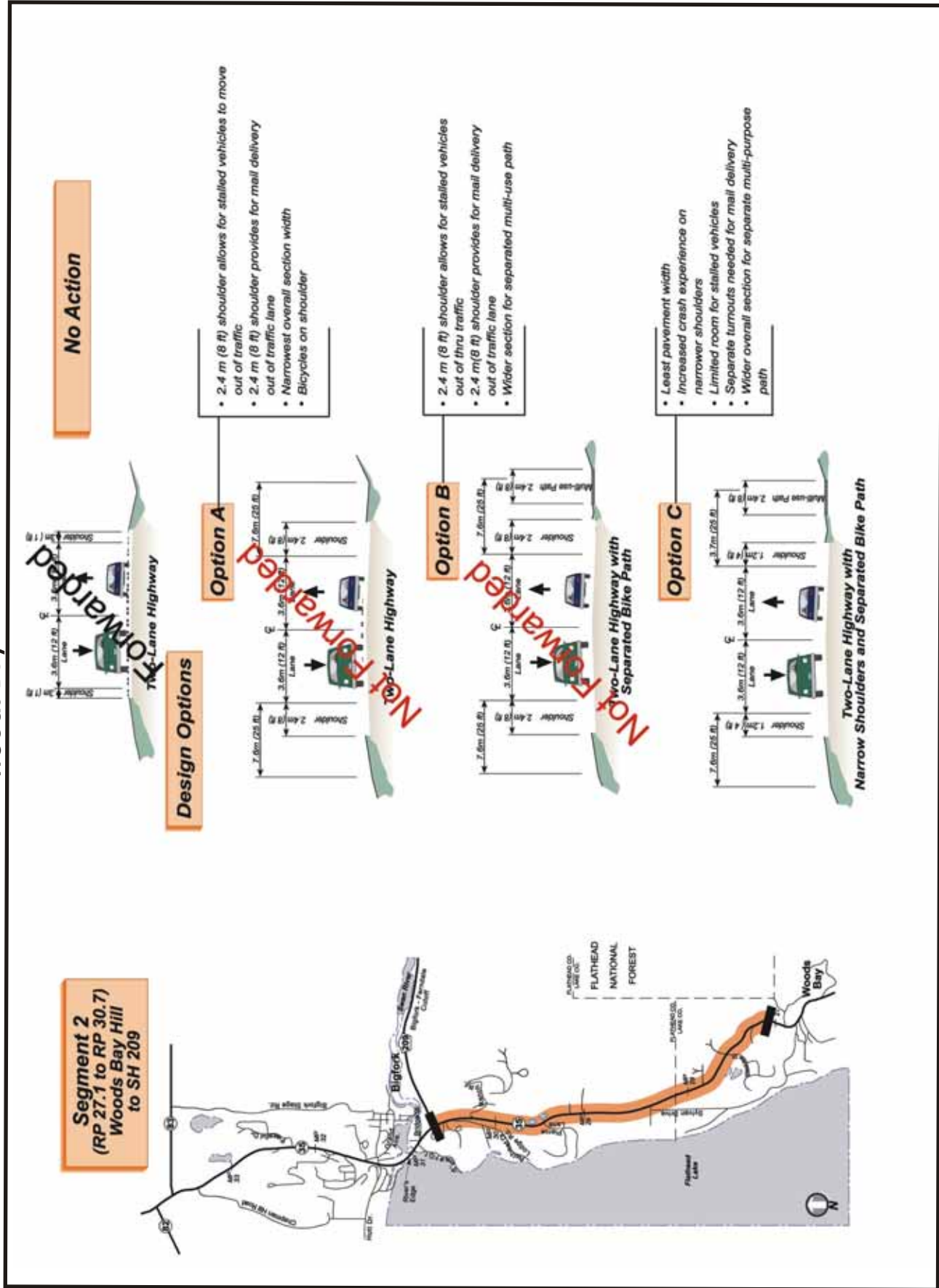


**Figure 2-2 Segment 1 Assessment of Options
Woods Bay to Woods Bay Hill**

	Traffic Operations Roadway Cross-Section Level of Service Turning Lanes/Bays Access Management	Safety Crash Severity Crash Frequency	Pedestrian & Bicycle Safety Connectivity Recreation	Community Support Corridor Width Rural/Scenic Character Visual Impacts Compatible w/Future Land Use	Environmental Impacts Natural Resources & Wetlands Cultural Resources Right-of-Way Social & Economic Resources	Cost & Construction Impacts Construction Costs Construction Impacts Traffic Control During Construction	Operation & Maintenance O&M Costs Landscaping Snow Removal
No Action	Does not provide turn lanes ----- Acceptable LOS No change in existing accesses ----- No passing opportunity available	Crash frequency & severity will increase proportional to traffic volumes	Narrow shoulders without multi-use paths discourage pedestrian & bicycle use ----- Dangerous conditions for pedestrians & bicyclists	Minimal support for no improvement mainly due to safety concerns ----- May not meet community vision ----- Narrow roadway limits future accesses & land use (growth & development)	No Impacts	No Impacts	No change in landscaping/snow removal ----- Roadway maintenance will increase due to deteriorating pavement condition ----- Roadway maintenance costs are reaching a point where it is no longer feasible and prudent to repair pavement that is so deteriorated
Option A Widened Shoulders No Curb & Gutter	Limited turn lanes except at key intersections ----- Improved shoulders, east=3m (10ft), west=1.2m (4 ft) ----- Acceptable LOS No passing lanes available No change in existing accesses ----- Passing opportunity available	Wider shoulders allow greater pullout room ----- Improved sight distance ----- Crash frequency & severity may be improved with turn lanes & wider shoulders	Provides wide east side shoulder for informal use of pedestrians & bicyclists ----- Shoulders on west side are widened	Shoulder widening is consistent with community vision to have a pedestrian friendly community ----- Minimizing shoulder width on the west side of the highway reduces pavement width, which retains the rural character of the corridor	1.4 hectare (3.5 acre) estimated additional right-of-way required ----- No cultural resources impacts anticipated ----- No wetland impacts anticipated ----- No substantial social & economic impacts anticipated	Construction impacts will be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, delays, etc.) ----- Traffic control measures will be employed to maintain highway operation during construction Construction cost estimated at \$1.5M to \$1.7M per mile	No additional landscaping maintenance ----- No substantial change in snow removal on the roadway
Option B Widened Shoulders Curb & Gutter	Limited turn lanes except at key intersections ----- Curb & Gutter clearly delineates driveway location & gives visual cues of urban area ----- Acceptable LOS Widened shoulders 2.4m (8ft) each side ----- Passing opportunity available	Wider shoulders allow greater pullout room ----- Crash frequency & severity may be improved with turn lanes & wider shoulders ----- Improved sight distance ----- Definition of access improves driver expectation	Provides wide shoulders on both sides for informal use of pedestrians & bicyclists ----- Potential for sand/gravel debris on separated walk ----- Provides continuous concrete sidewalk on east side	Shoulder width slightly increases the overall pavement width, curb & gutter keep pavement width to a minimum ----- Shoulders, west side sidewalk, curb & gutter assist in community vision to have a pedestrian & bicycle friendly community ----- Urban appearance of curb & gutter is inconsistent with communities desire for a rural character	1.7 hectare (4.2 acre) estimated additional right-of-way required ----- No cultural resources impacts anticipated ----- No wetland impacts anticipated ----- No substantial social & economic impacts anticipated	Construction impacts will be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, delays, etc.) ----- Traffic control measures will be employed to maintain highway operation during construction ----- Construction cost estimated at \$1.5M to \$1.7M per mile	Minimal landscaping maintenance between sidewalk, curb & gutter will be required ----- Snow removal & maintenance of the sidewalk will be necessary ----- No substantial change in snow removal on the roadway
Option C Turn Lane	Continuous left turn lanes provided ----- Acceptable LOS Improved shoulders 1.2 m (4ft) each side ----- No change in existing accesses ----- Passing opportunity available	Center turn lane provides for left turning movements ----- Improved sight distance ----- Center turn lane allows for passing stalled vehicles, which may reduce accident frequency & severity	Minimally wider shoulder provides greater bicycle safety & facilitates use ----- Provides multi-use path on west side for pedestrians ----- Potential for sand/gravel debris on separated path	Multi-use path on the west side is consistent with the community vision for a pedestrian friendly community ----- Wider pavement section may create a less rural character	2.8 hectare (7.0 acre) estimated additional right-of-way required ----- No wetland impacts anticipated No cultural resources impacts anticipated ----- No substantial social & economic impacts anticipated	Construction impacts will be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, delays, etc.) ----- Traffic control measures will be employed to maintain highway operation during construction ----- Construction cost estimated at \$1.6M to \$1.8M per mile	Minimal landscaping maintenance between multi-use path & curb will be required ----- No substantial change in snow removal on the roadway ----- Snow removal & maintenance of the multi-use path will be necessary



Figure 2-3 Segment 2 Design Options
Woods Bay Hill to SH-209



**Figure 2-4 Segment 2 Assessment of Options
Woods Bay Hill to SH-209**

	Traffic Operations Roadway Cross-Section Level of Service Turning Lanes/Bays Access Management	Safety Crash Severity Crash Frequency	Pedestrian & Bicycle Safety Connectivity Recreation	Community Support Corridor Width Rural/Scenic Character Visual Impacts Compatible w/Future Land Use	Environmental Impacts Natural Resources & Wetlands Cultural Resources Right-of-Way Social & Economic Resources	Cost & Construction Impacts Construction Costs Construction Impacts Traffic Control During Construction	Operation & Maintenance O&M Costs Landscaping Snow Removal
No Action	Does not provide turn lanes Acceptable LOS No change in existing accesses No passing opportunity available	Crash frequency & severity will increase proportional to traffic volumes, especially through deficient sections No provisions will be made to shoulders to allow for stalled or stopped vehicles to pullout of the traffic lanes	Inadequate pedestrian & bicycle facilities Dangerous conditions for pedestrians & bicyclists	Will retain the rural character of the rural section of the highway Compatible with future land use, however, increased development without adding turn lanes and wider shoulder may affect the operation of the roadway	No Impacts	No Impacts	No change in landscaping/snow removal Roadway maintenance will increase due to deteriorating pavement condition Roadway maintenance costs are reaching a point where it is no longer feasible and prudent to repair pavement that is so deteriorated
Option A	Acceptable LOS Left & right turn lanes where needed will improve operations No substantial change in existing accesses Shoulders will be widened to 2.4m (8ft) on each side	Wider shoulders allow greater pullout room Crash frequency & severity may be improved with turn lanes and wider shoulders	Wider shoulders provide pedestrian & bicycle facilities typical of most rural areas Continuous bicycle friendly facilities provide for consistent bicycle access between Woods Bay & Bigfork	Shoulder widening is consistent with community vision to have a pedestrian & bicycle friendly facility Shoulder width will increase overall pavement width in this section Increased pavement width is not substantial enough to change the rural character	8.5 hectare (21 acre) estimated additional right-of-way required .1 hectare (.25 acre) estimated wetland impact No cultural resources impacted No substantial social & economic impacts	Construction impacts would be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, erosion, etc.) Traffic control measures will be employed to maintain highway operation during construction Construction Cost \$0.8M to \$0.9M per mile	No additional landscaping maintenance No substantial change in snow removal of the roadway
Option B	Acceptable LOS Left & right turn lanes where needed will improve operations No substantial change in existing accesses	Crash frequency & severity may be improved with turn lanes & wider shoulders Wider shoulders allow greater pullout room	Wider shoulders provide pedestrian & bicycle facilities Continuous multi-use path provides for access between Bigfork & Woods Bay Multi-use separated path will increase recreational opportunities	Shoulder widening & path is consistent with community vision to have a pedestrian & bicycle friendly community Shoulder width & multi-use path will increase the overall pavement width in this section This option has the widest cross-section width The feeling of a wider road will be mitigated with landscaping between the shoulder & path	9.3 hectare (23 acre) estimated additional right-of-way required No substantial social & economic impacts .15 hectare (.36 acre) estimated wetland impact No cultural resources impacted	Construction impacts would be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, erosion, etc.) Traffic control measures will be employed to maintain highway operation during construction Construction Cost \$0.9M to \$1M per mile	There will be a minor increase in maintenance associated with the separated path No substantial change in snow removal of the roadway
Option C	Acceptable LOS Left & right turn lanes where needed will improve operations No substantial change in existing accesses	Narrower 1.2m (4 ft) shoulders will have limited pullout room Crash frequency & severity may be slightly improved with turn lanes & shoulders Crash frequency expected to be higher than options with larger shoulders	Multi-use separated path will increase recreational opportunities Continuous pedestrian & bicycle friendly path provides for multi-purpose access between Bigfork & Woods Bay	Shoulder widening & path is consistent with community vision to have a pedestrian & bicycle friendly community Increased pavement width is less substantial with more narrow shoulders	8.9 hectare (22 acre) estimated additional right-of-way required No substantial social & economic impacts .007 hectare (.019 acre) estimated wetland impact No cultural resources impacted	Construction impacts would be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, erosion, etc.) Traffic control measures will be employed to maintain highway operation during construction Construction Cost \$0.8M to \$0.9M per mile	There will be a minor increase in maintenance associated with the separated path No substantial change in snow removal of the roadway



2.2.3 Segment 3, SH-209 to Grand Avenue

The elements of the design options for Segment 3 are shown in **Figure 2-5**. Evaluations are detailed in **Figure 2-6**.

- ☒ No-Action. The No-Action Alternative is considered and evaluated through the Environmental Assessment.
- ☒ Design Option A. This alternative includes two 3.6 m (12 ft) traffic lanes, a 4.3 m (14 ft) two-way left-turn lane, 2.4 m (8 ft) shoulders, and a separated 1.5 m (5 ft) walking path. This alternative was **forwarded** as the Preferred Alternative for the section from SH-209 to Bridge Street with the following revision: a 2.4 m (8 ft) multipurpose path next to the shoulder with a painted divider replaced the 1.5m (5ft) walking path. This alternative was forwarded as the Preferred Alternative for the section from Bridge Street to Grand Avenue, including the Swan River Bridge, with the following revisions: the two-way left-turn lane is omitted and a 1.8 m (6 ft) walking path next to the shoulder replace the separated 1.5m (5ft) walking path.
- ☐ Design Option B. This design option includes two 3.6 m (12 ft) traffic lanes, a 4.9 m (16 ft) raised median, 1.5 m (5 ft) bike lanes, and a separated 1.5 m (5 ft) walking path. This alternative was **not forwarded** to the Preferred Alternative due to the need for left-turn access in the area between SH-209 and Bridge Street and width constraints from Bridge Street to Grand Avenue.
- ☒ Design Option C. This design option is the same a Design Option B but with a much wider median. This alternative was **dropped from consideration** because of opposition from the community due to the width of the overall cross-section and impacts to right-of-way. The community's opposition was so pronounced, they requested that the figure depicting the alternative be removed from all graphics.

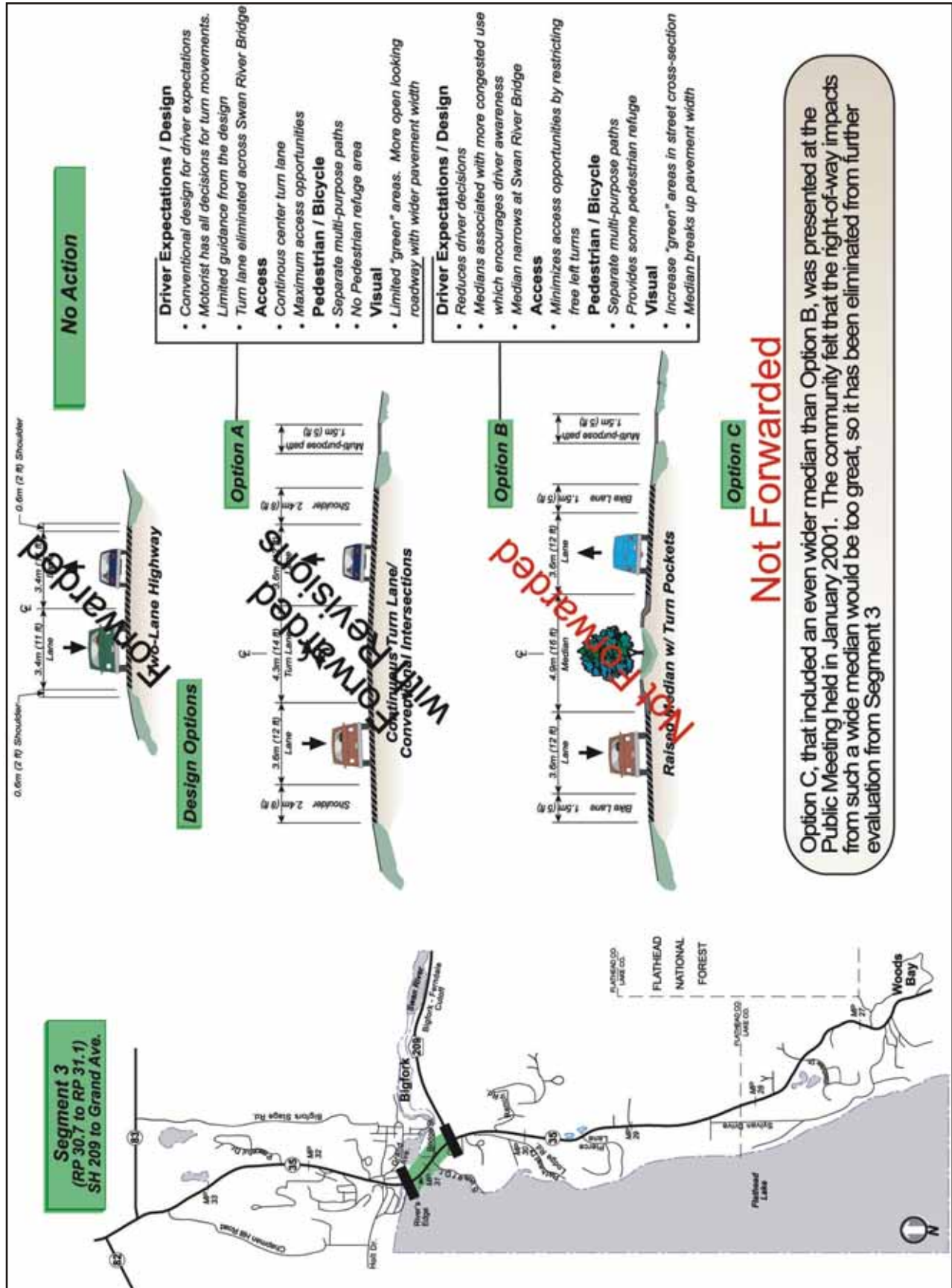
2.2.4 Segment 4, Grand Avenue to Ice Box Canyon

The elements of the design options for Segment 4 are shown in **Figure 2-7**. Evaluations are detailed in **Figure 2-8**.

- ☒ No-Action. The No-Action Alternative is considered and evaluated through the Environmental Assessment.
- ☒ Design Option A. This design option includes two 3.6 m (12 ft) traffic lanes, a 4.3 m (14 ft) two-way left-turn lane, 2.4 m (8 ft) shoulders, and a separated 1.5 meter (5 ft) multipurpose path on both sides of the highway. This alternative was **forwarded** to the Preferred Alternative. After the communities' opinions were incorporated into the design of the Preferred Alternative, revisions were made to the width of the multipurpose paths. It is used in areas where there is a need for left-turn access, particularly in those areas where there are numerous commercial driveways.
- ☒ Design Option B. This design option includes two 3.6 m (12 ft) traffic lanes, a 4.9 m (16 ft) raised median, 1.5 m (5 ft) bike lanes, and a separated 1.5 m (5 ft) walking path on both sides of the highway. This alternative was **forwarded** to the Preferred Alternative. After further refinement, revisions were made to the median, roadway width, shoulders, and walk paths so that it functions adjacent to areas where Option A is used. This cross-section is used in areas where a need for left-turn access does not exist.
- ☒ Design Option C. This is the same as Design Option B but with a much wider median. This alternative was **dropped from consideration** because of opposition from the community due to the width of the overall cross-section and the impacts to right-of-way. The communities opposition was so pronounced that they requested that the figure depicting the alternative be removed from all future graphics.



Figure 2-5 Segment 3 Design Options
SH-209 to Grand Avenue

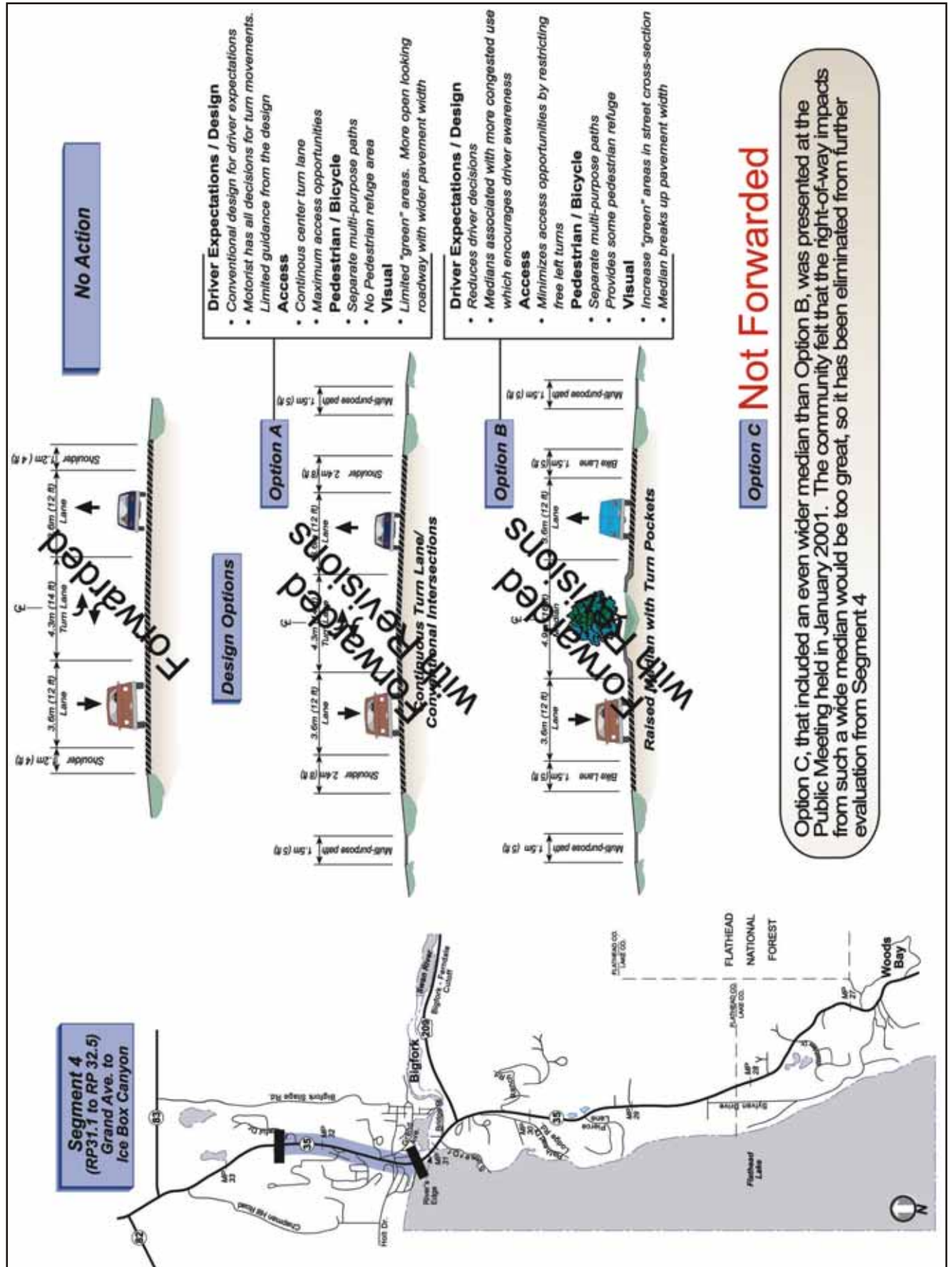


**Figure 2-6 Segment 3 Assessment of Options
SH-209 to Grand Avenue**

	Traffic Operations Roadway Cross-Section Level of Service Turning Lanes/Bays Access Management	Safety Crash Severity Crash Frequency	Pedestrian & Bicycle Safety Connectivity Recreation	Community Support Corridor Width Rural/Scenic Character Visual Impacts Compatible w/Future Land Use	Environmental Impacts Natural Resources & Wetlands Cultural Resources Right-of-Way Social & Economic Resources	Cost & Construction Impacts Construction Costs Construction Impacts Traffic Control During Construction	Operation & Maintenance O&M Costs Landscaping Snow Removal
No Action	Does not provide turn lanes Acceptable LOS No change in existing accesses Turning movements will become increasingly difficult as traffic increases if turning lanes are not constructed on this section of the roadway	Crash frequency & severity will increase proportional to traffic volumes, especially in the more developed sections of the roadway No provisions will be made to shoulders to allow for stalled or stopped vehicles to pullout of the traffic lanes	Inadequate pedestrian & bicycle facilities Dangerous conditions for pedestrians & bicyclists	Will retain the rural character of the rural section of the highway Current conditions, especially with regard to lack of safe bicycle & pedestrian facilities does not meet the community vision for creating a scenic/rural village atmosphere	No Impacts	No Impacts	No change in landscaping/snow removal Roadway maintenance will increase due to deteriorating pavement condition Roadway maintenance costs are reaching a point where it is no longer feasible and prudent to repair pavement that is so deteriorated
Option A Continuous Turn Lane	Acceptable LOS Left & right turns where needed will improve operations No substantial change to the existing accesses Shoulders will be widened to 2.4 m (8 ft) on each side	Wider shoulders will allow greater pullout room Crash frequency & severity will be improved with turn lanes & wider shoulders	Continuous bicycle friendly shoulder & walking path for pedestrians provides for non-motorized access in Bigfork Wider shoulders provide pedestrian & bicycle facilities typical of most rural areas	Shoulder widening is consistent with community vision to have a pedestrian & bicycle friendly community Shoulder width will slightly increase the overall pavement width in this section Walking paths are compatible with future land use & development in Bigfork	Minimal additional right-of-way required No anticipated wetland impacts No cultural resources impacted No substantial social & economic impacts anticipated	Construction impacts would be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, erosion, etc.) Construction Cost \$0.9M to \$1M per mile Traffic control measures will be employed to maintain highway operation during construction	There will be some additional landscaping maintenance between the path & shoulder There will be increased maintenance associated with the walking path No substantial change in snow removal on the roadway
Option B Raised Median	Acceptable LOS Left & right turns where needed will improve operations No substantial change to the existing accesses Accesses will continue to function with medians since free turning movements will be reduced allowing better entrance and exit from driveways Shoulders will be widened to 1.5 m (5 ft) on each side	Shoulders meet minimum standards for pullout Crash frequency & severity will be improved with turn lanes & wider shoulders Medians reduce the potential number of vehicle conflict points, which will increase safety Raised medians create a visual cue identifying a more developed community with the intent being to have drivers adjust their speed accordingly (slow down), which will make the facility safer	1.5 m (5 ft) shoulders will accommodate bicyclists Continuous bicycle friendly shoulder & walking path for pedestrians provides for non-motorized access in Bigfork	Businesses do not support the median, it limits access Walking path consistent with the community vision to have a pedestrian & bicycle friendly community Medians are consistent with the community vision to create green space in a village setting Walking paths are compatible with future land use & development in Bigfork	Minimal additional right-of-way required No anticipated wetland impacts No cultural resources impacted No substantial social & economic impacts anticipated	Construction impacts would be typical of any road rehabilitation project and will be minimized (i.e. noise, dust, erosion, etc.) Construction Cost \$0.9M to \$1M per mile Traffic control measures will be employed to maintain highway operation during construction	There will be some additional landscaping maintenance between the path & shoulder There will be increased maintenance associated with the walking path No substantial change in snow removal on the roadway



Figure 2-7 Segment 4 Design Options
Grand Avenue to Ice Box Canyon





**Figure 2-8 Segment 4 Assessment of Options
Grand Avenue to Ice box Canyon**

	Traffic Operations Roadway Cross-Section Level of Service Turning Lanes/Bays Access Management	Safety Crash Severity Crash Frequency	Pedestrian & Bicycle Safety Connectivity Recreation	Community Support Corridor Width Rural/Scenic Character Visual Impacts Compatible w/Future Land Use	Environmental Impacts Natural Resources & Wetlands Cultural Resources Right-of-Way Social & Economic Resources	Cost & Construction Impacts Construction Costs Construction Impacts Traffic Control During Construction	Operation & Maintenance O&M Costs Landscaping Snow Removal
No Action	Does not provide turn lanes ----- No change in existing accesses ----- Acceptable LOS along the roadway except at Grand Ave ----- No opportunity for passing ----- Turning movements will become increasingly difficult as traffic increases if turning lanes are not constructed on this section of the roadway	Crash frequency & severity will increase proportional to traffic volumes, especially in the more developed sections of the roadway and at the Grand ----- No provisions will be made to shoulders to allow for stalled or stopped vehicles to pullout of the traffic lanes	Inadequate pedestrian & bicycle facilities ----- Dangerous conditions for pedestrians & bicyclists	Will retain the rural character of the rural section of the highway ----- No additional opportunities for recreational activities ----- Current conditions, especially with regard to lack of safe bicycle & pedestrian facilities does not meet the community vision for creating a scenic/rural village atmosphere	No anticipated wetland impacts ----- No cultural resources impacted ----- Poor LOS through this area, especially at Grand Ave. and in the area of Lake Hills Shopping Plaza, may affect the economic growth of the community	No Impacts	No change in landscaping/snow removal ----- Roadway maintenance will increase due to deteriorating pavement condition ----- Roadway maintenance costs are reaching a point where it is no longer feasible and prudent to repair pavement that is so deteriorated
Option A Continuous Turn Lane	Acceptable LOS ----- Left & right turn lanes where needed will improve operations ----- No substantial change to the existing accesses ----- Shoulders will be widened to 2.4 m (8 ft) on each side	Wider shoulders allow greater pullout room ----- Crash frequency & severity will be improved with turn lanes & wider shoulders	Wider shoulders provide bicycle facilities ----- Continuous bicycle friendly shoulder & walking paths provide for non-motorized facilities in Bigfork	Shoulder widening is consistent with community vision to have a pedestrian & bicycle friendly community ----- Bike and walking paths are compatible with future land use & development in Bigfork	.08 hectare (2 acre) estimated additional right-of-way required ----- No anticipated wetland impacts ----- No cultural resources impacted ----- No substantial social & economic impacts anticipated	Construction impacts would be typical of any road rehabilitation project & will be minimized (i.e. noise, dust, erosion, etc.) ----- Traffic control measures will be employed to maintain highway operation during construction ----- Construction cost estimated \$2.1M to \$2.4M per mile	There will be some additional landscaping maintenance between the path and the shoulder ----- There will be increased maintenance associated with the bicycle and walking paths ----- No substantial change in snow removal on the roadway
Option B Raised Median	Shoulders will be widened to 1.5 m (5 ft) on each side ----- Median will limit turning movements ----- No substantial change to the existing accesses ----- Acceptable LOS ----- Accesses will continue to function with medians since free turning movements will be reduced allowing better entrance and exit from driveways	Shoulders/bike lane meets minimum standards for pullout ----- Medians reduce the potential number of vehicle conflict points, which will increase safety ----- Crash frequency & severity will be improved with turn lanes & wider shoulders ----- Raised medians create a visual cue identifying a more developed community with the intent being to have drivers adjust their speed accordingly (slow down) which will make the facility safer	Bike lanes & walking paths are compatible with future land use & development in Bigfork ----- Bicycle lanes & walking path are consistent with the community vision to have a pedestrian & bicycle friendly community	Support mixed, businesses do not support medians that limits access ----- Bicycle lanes and a multi-use path are consistent with the community vision to have a pedestrian & bicycle friendly facility ----- Medians are consistent with the community vision to create green space in a village setting	1.4 hectare (3.5acre) estimated additional right-of-way required ----- No anticipated wetland impacts ----- No substantial social & economic impacts anticipated ----- No cultural resources impacted	Construction impacts would be typical of any road rehabilitation project & will be minimized (i.e. noise, dust, erosion, etc.) ----- Traffic control measures will be employed to maintain highway operation during construction ----- Construction cost estimated \$2.1M to \$2.4M per mile	There will be some additional landscaping maintenance between the paths and the shoulder ----- There will be increased maintenance associated with the walking path ----- No substantial change in snow removal on the roadway



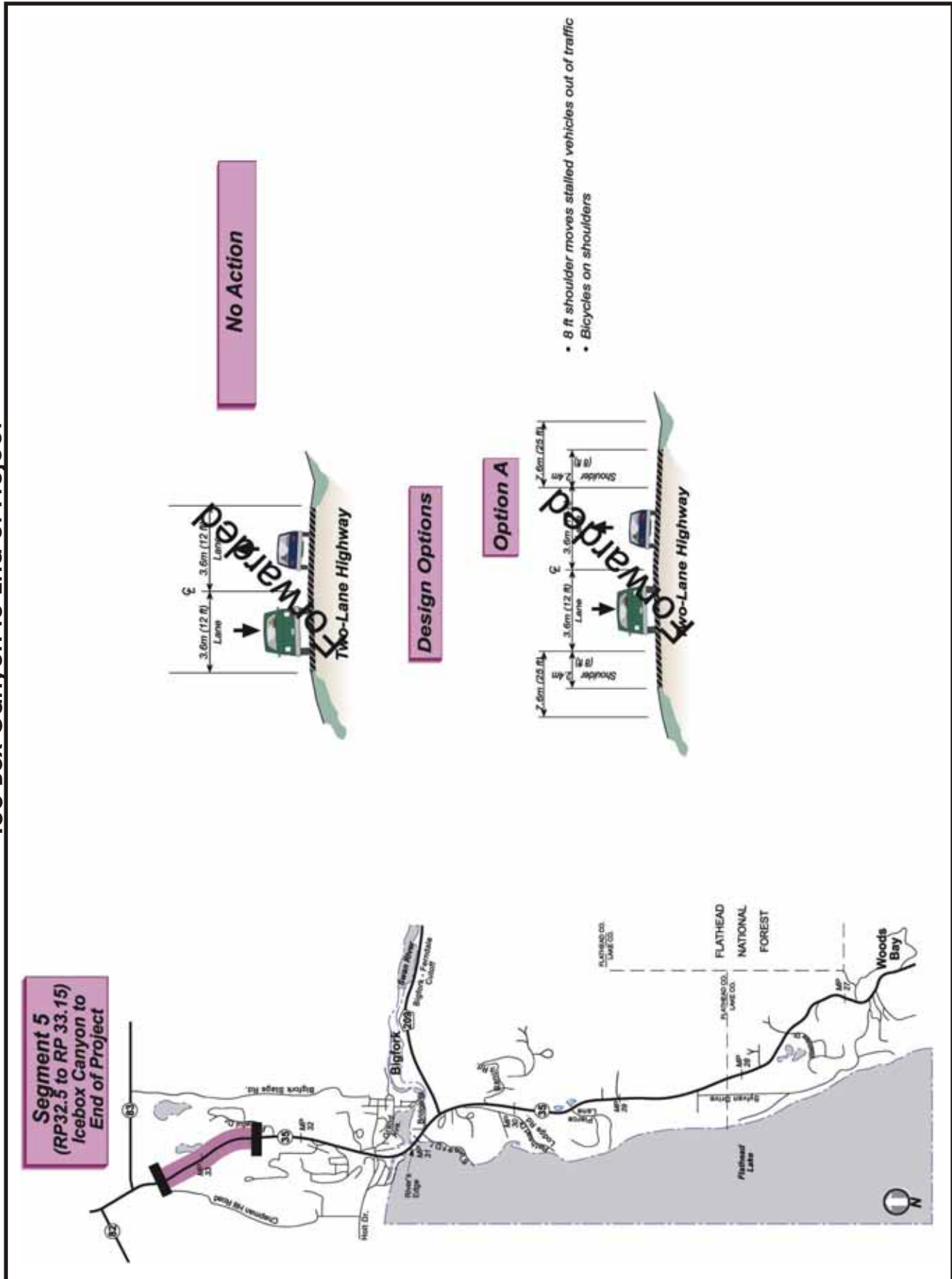
2.2.5 Segment 5, Ice Box Canyon to End of Project

The elements of the design options for Segment 5 are shown in **Figure 2-9**. Evaluations are detailed in **Figure 2-10**.

- ☒ No-Action. The No-Action Alternative is considered and evaluated through the Environmental Assessment.
- ☒ Design Option A. This design option includes two 3.6 m (12 ft) traffic lanes, and 2.4 m (8 ft) shoulders. This was the only "build" alternative **forwarded** for this segment.



Figure 2-9 Segment 5 Design Options
Ice Box Canyon to End of Project



**Figure 2-10 Segment 5 Assessment of Options
Ice box Canyon to the End of the Project**

	Traffic Operations Roadway Cross-Section Level of Service Turning Lanes/Bays Access Management	Safety Crash Severity Crash Frequency	Pedestrian & Bicycle Safety Connectivity Recreation	Community Support Corridor Width Rural/Scenic Character Visual Impacts Compatible w/Future Land Use	Environmental Impacts Natural Resources & Wetlands Cultural Resources Right-of-Way Social & Economic Resources	Cost & Construction Impacts Construction Costs Construction Impacts Traffic Control During Construction	Operation & Maintenance O&M Costs Landscaping Snow Removal
No Action	Does not provide turn lanes Acceptable LOS No opportunity for passing No change in existing accesses Does not correct unsafe curve	No provisions will be made to shoulders to allow for stalled or stopped vehicles to pullout of the traffic lanes	Inadequate pedestrian & bicycle facilities	Will retain the rural character of the rural section of the highway	No Impacts	No Impacts	No change in landscaping/snow removal Roadway maintenance will increase due to deteriorating pavement condition Roadway maintenance costs are reaching a point where it is no longer feasible and prudent to repair pavement that is so deteriorated
Option A Two-Lane Highway	Acceptable LOS Left turn lanes where needed will improve operations No substantial change to the existing accesses Shoulders will be widened to 2.4m (8 ft) on each side	Wider shoulders allow greater pullout room Crash frequency & severity will be improved with turn lanes & wider shoulders Safety will be improved by fixing curves The curve geometry will not substantially change the road to where it will be straightened (i.e. not a substantial change to encourage an impact on speeds)	Wider shoulders provide pedestrian & bicycle facilities typical of rural areas	Will retain the rural character of the rural section of the highway	2.4 hectare (6 acre) estimated additional right-of-way required No anticipated wetland impacts No cultural resources impacted No substantial social & economic impacts anticipated	Construction impacts would be typical of any road rehabilitation project & will be minimized (i.e. noise, dust, erosion, etc.) Traffic control measures will be employed to maintain highway operation during construction Construction cost estimated \$0.9M to \$1M per mile	No substantial change in snow removal on the roadway



2.3 Intersection Alternatives

The concept of using roundabouts is new for the communities of Bigfork and Woods Bay. The intersection design was introduced by the project team early in the stakeholder process. Information about roundabouts is included in **Appendix A**.

As alternatives were considered for each of the major intersections including SH-209/MT-35, Bridge Street/Sunset Drive/MT-35, Grand Avenue/Holt Drive/MT-35, and Lake Hills Drive/ MT-35, an evaluation of both intersection designs was performed (**Figure 2-11**). The following is a description of the intersection design options considered for each intersection.

2.3.1 SH-209 & MT-35

Both signalized and roundabout intersection designs were considered for this intersection. Following a traffic analysis, it was determined that the current traffic meets traffic signal warrants as defined by the Manual on Uniform Traffic Control Devices.

- ☒ A roundabout was **forwarded** for this intersection because it provides the following advantages over a traffic signal:
 - ▶ It identifies Bigfork as a rural community.
 - ▶ It encourages slower speeds as traffic enters the commercialized area around SH-209.

2.3.2 Bridge Street, Sunset Drive & MT-35.

Both signalized and roundabout intersection designs were considered for this intersection. It has experienced safety problems in the past, including several serious crashes. After a traffic analysis was conducted, it was determined that current traffic meets traffic control warrants as defined by the Manual on Uniform Traffic Control Devices.

- ☒ A roundabout was **forwarded** for this intersection because it provided the following advantages over a traffic signal:
 - ▶ A roundabout eliminates the need for a left-turn bay in the highly constrained section north of the intersection.
 - ▶ Roundabouts, when used in a series, will encourage slower speeds in the commercialized portion of the Bigfork area.
 - ▶ The elongated design discourages heavy truck use of the local approach. Trucks are expected to use alternate means of entering Bigfork Village.

2.3.3 Grand Avenue, Holt Drive & MT-35.

Both signalized and roundabout intersection designs were considered for this intersection. A signalized intersection, which includes improvements to geometry, pedestrian access, and channelization was considered. This intersection has experienced safety problems related to the awkward approach angle of the easterly leg of the intersection.

- ☒ A conventional traffic signal was forwarded for this intersection because it provided the following advantages over a roundabout:
 - ▶ A roundabout will experience periods of congestion, due to different ADTs on the approach streets, as traffic increases by the year 2024.
 - ▶ The community has concerns about the potential for improper operations and motorist confusion associated with this type of 3-way intersection and a roundabout.



2.3.4 Lake Hills Drive & MT-35.

This intersection is a major concern for the community. They have requested a traffic signal at this location for many years. Due to the numerous and poorly designed driveways, a traffic signal is not appropriate without the consolidation of accesses. MDT has maintained that, if a traffic signal is installed, all left-turn access in the area must be directed to the signal. A roundabout intersection was considered, however, due to right-of-way constraints, geometric conditions and cut/fill impacts; a roundabout was determined to be unacceptable.

- ☒ A conventional signalized intersection has been **forwarded** to the Preferred Alternative that has been designed to work with a new median that directs all left turns to the signalized intersection and consolidates access into the adjacent properties.

**Figure 2-11 Assessment of Options
Intersection Alternatives**

	Traffic Operations Roadway Cross-Section Level of Service Turning Lanes/Bays Access Management	Safety Crash Severity Crash Frequency	Pedestrian & Bicycle Safety Connectivity Recreation	Community Support Corridor Width Rural/Scenic Character Visual Impacts Compatible w/Future Land Use	Operation & Maintenance O&M Costs Landscaping Snow Removal	Cost & Construction Impacts Construction Costs Construction Impacts Traffic Control During Construction
Single Lane Roundabout	Most effective when approaches have balanced traffic volumes	Encourages slower speeds, which reduces crash severity	Pedestrians and bicyclists must use the crosswalks and sidewalks	To accommodate vehicles the roundabout will be 49 m (160 ft), which will require additional right-of-way	There will be additional maintenance of landscaped areas	Construction costs will be higher for a roundabout than for adding median islands in a conventional intersection
	Volumes on MT-35 are substantially greater than Grand Ave and Holt Dr, may lead to delays on approach roads	Driver recognition will be poor to begin with at start up for local residents and consistently poor for tourists, which could lead to a higher crash rate	Pedestrians must cross moving traffic as compared to a signalized intersection where traffic is stopped for pedestrians to cross	Roundabout at Grand Ave meets the community vision to enhance the small village setting	Snow removal will be more challenging in the initial year due to the unfamiliarity with roundabout configuration	There will be disturbance to traffic flow during construction
	In 2024 traffic volumes will increase creating unacceptable LOS for single lane roundabout design	Reduces the number of conflict points, which reduces crash frequency	Pedestrians cross traffic moving in one direction only	The center to the roundabout can be landscaped	O&M costs will not be substantially different from those currently	
	Provides improved intersection efficiency for left turning vehicles		Roundabouts do not have features to assist visually impaired persons across the crosswalks			
	Vehicles are more likely to travel through the roundabout at slower speeds					
Conventional Signal	Will require relocation of bowling alley access					
	Phasing can be adjusted to provide for movements based on traffic volumes	Crash severity can be higher due to higher approach speeds	Pedestrians & bicyclists can both use the crosswalks	No substantial change in right-of-way is needed	There will be additional maintenance of landscaped areas in raised islands	Construction costs to add islands, turn lane, improvements, striping will be minimal
	Will provide acceptable LOS in 2024	Meets driver expectations	Bicyclists can use the travel lanes in the intersection following motor vehicle laws	Raised islands can be constructed to improve the visual character of the intersection at Grand Ave & to enhance the small village setting	O&M costs will not be substantially different from those currently	There will be some disturbance to traffic flow during construction, but substantially less than with a roundabout
	Use right & left turn lanes to accommodate traffic flow	There are more conflict points than in a roundabout, which will contribute to a higher crash frequency	Signals provide special protected phasing allowing pedestrians to cross the roadway without vehicle traffic	Raised islands can be landscaped		
	Vehicles should travel through the intersection at the posted speed	Conflict points can be reduced by signal phasing such as left turn arrows	Pedestrians cross traffic moving in both directions	Islands can serve as pedestrian refuge areas, which will be in character with Bigfork's community vision to be a more "walkable" community		
		Can improve crash severity & frequency rates will good sight distance	Pedestrian refuge areas can be installed to reduce the crossing distance			



2.4 Alternatives Advanced

Two alternatives were forwarded for complete evaluation through the environmental process. These alternatives include the No-Action Alternative and the Preferred Alternative. The Preferred Alternative is based on the design options forwarded for further consideration in the first phase of the alternatives development process. Following the principles of Context Sensitive Design, and after further refinement, additional changes were made within the cross-section designs. These refinements led to many different cross-sections within the corridor segments. The cross-sections, which were included in the Preferred Alternative, are illustrated on **Figure 2-12**

2.4.1 No-Action Alternative

The No-Action Alternative does not include any construction improvements. Under the No-Action Alternative, continued maintenance and upkeep of the existing transportation facility will occur. Maintenance activities will include regular activities such as mowing, ditch cleaning, guardrail repair, etc. More substantial activities are also expected such as pavement repair and patching, pavement overlay and bridge rehabilitation. As the age of the roadway infrastructure increases and continues to degrade, the frequency and size of these more substantial measures are expected to increase.

2.4.2 Preferred Alternative

The Preferred Alternative was developed through a collaborative and interactive effort with the community and addresses many needs as described in Chapter One: Purpose & Need. The process was conducted according to the principles of Context Sensitive Design such that the Preferred Alternative: 1) Meets the transportation need; 2) Is compatible with the natural and built environment; and 3) Is an asset to the community.

To identify a Preferred Alternative that is consistent with the context of the community, the community is described by the following statement:

The communities of Bigfork and the eastern shore of Flathead Lake are areas whose economy is based largely on the success of destination resort related business. People visit the area and use local goods and services largely due to the high quality scenic views, community, and environmental values of the forest land, mountains, village atmosphere and Flathead Lake. As a critical transportation facility, MT-35 should complement and serve those values.

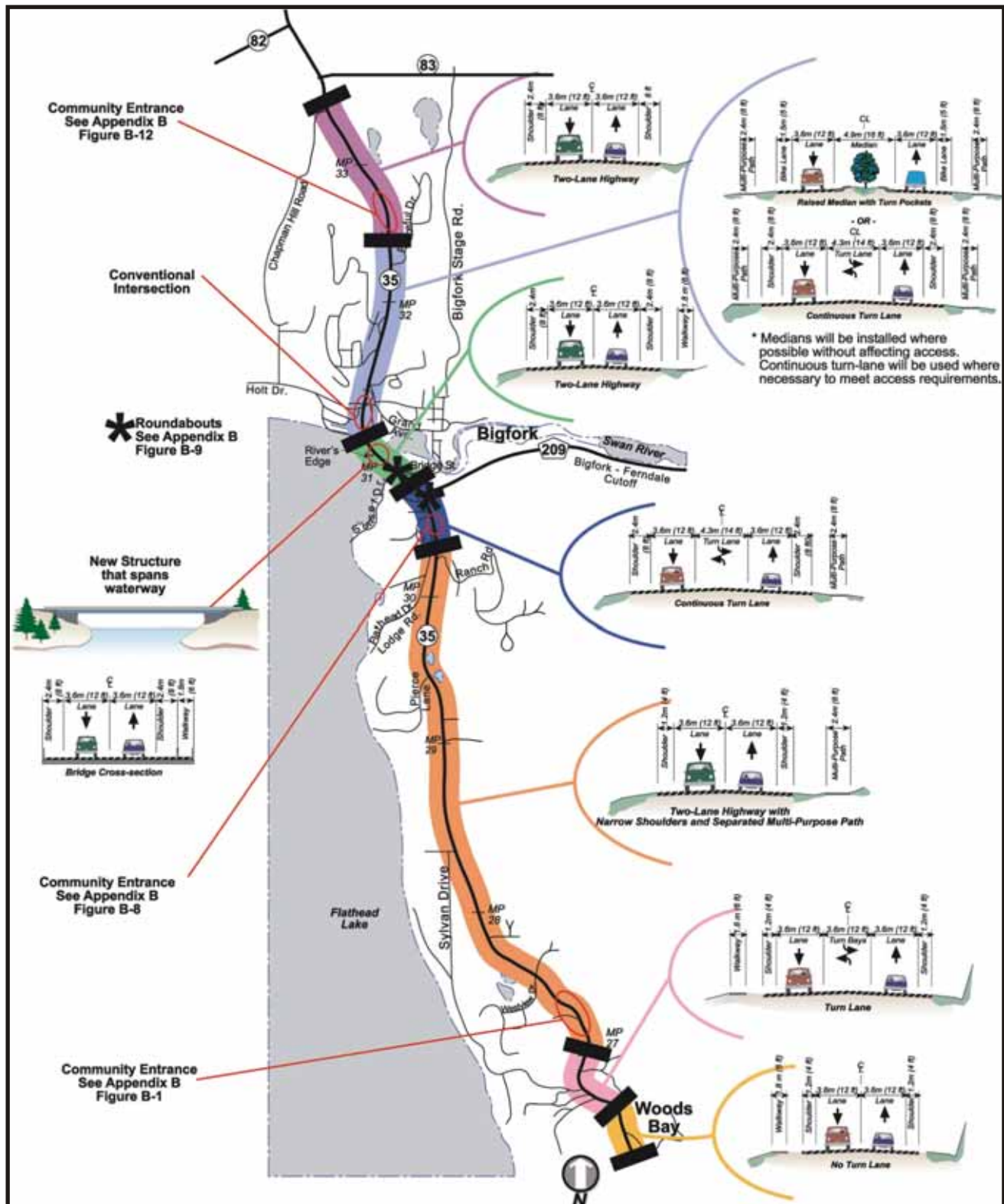
The Elements of the Preferred Alternative include:

- ▶ Cross-sectional elements: traffic lanes, shoulders, clear zones, medians, ditches and slopes.
- ▶ Intersection treatments: traffic control measures, traffic signals, roundabouts, etc.
- ▶ Safety and operational improvements to geometric conditions, intersection configuration, and alignments are included to address specific areas of concern.
- ▶ Community Entry Treatments: measures to identify the entrances of the developed communities to the MT-35 traveler.
- ▶ Non-Motorized Facilities: multipurpose facilities, walkways and roadside treatments.
- ▶ A new Swan River Bridge.
- ▶ Supporting infrastructure elements. These elements are those required to support all the transportation features such as retaining walls, drainage features, etc.

The elements of the Preferred Alternative are shown on **Figure 2-12**.



Figure 2-12 Elements of the Preferred Alternative





Detailed graphics in **Appendix B** depict each element's specific role in the Preferred Alternative. Each element below references their corresponding graphic in **Appendix B**.

The Preferred Alternative is described as follows:

Cross-Sectional (Roadway Design) Elements:

- ▶ Driftwood Lane to the base of Woods Bay Hill - **Figure B-1**. The cross-section consists of two 3.6 m (12 ft) travel lanes, and 1.2 m (4 ft) shoulders.
- ▶ Base of Woods Bay Hill to Red Gate Road - **Figure B-1**. The cross-section consists of two 3.6 m (12 ft) travel lanes, 1.2 m (4 ft) shoulders, and a 3.6 meter (12 ft) two-way left-turn lane. The purpose of the two-way left-turn lane is twofold. The first purpose is to provide channelization and storage for left-turning vehicles particularly at Yenne Point Road, Sylvan Drive, and other commercial and private driveways. The second purpose was identified through the collaborative process. Trucks, or other vehicles, frequently stall on the hill during icy conditions and block traffic, effectively closing the road. The two-way left-turn lane provides enough overall roadway width for other vehicles to pass stalled vehicles on the hill. Additionally, auxiliary right-turn lanes are included at Yenne Point Road and Sylvan Drive to allow right-turning vehicles to slow outside the travel lanes. The Advisory Committee expressed concerns with the width required for the proposed turn lane at Woods Bay Hill taking too many trees and too much of the hill. The Advisory Committee would like to be involved during final design and construction to continue to address their concerns.
- ▶ Red Gate Road to Flathead Lake Lodge Road - **Figure B-2**. The cross-section consists of two 3.6 m (12 ft) travel lanes, and 1.2 m (4 ft) paved shoulders joining 1.2 m (4 ft) turf shoulders. The shoulders are designed to address communities' desire to reduce the overall width of the pavement surface and to preserve the feel of a quaint country roadway. It was determined that the shoulder design meets the safety needs of vehicles whose wheels wander over the shoulder line. The overall width of the paved plus turf area addresses the needs for storage of stalled vehicles out of the travel lanes.
- ▶ Flathead Lake Lodge Road to SH-209 - **Figure B-8**. This cross-section consists of two 3.6 m (12 ft) travel lanes, 2.4 m (8 ft) paved shoulders, and a continuous 4.3 m (14 ft) two-way left-turn lane. The presence of the two-way left-turn lane is to address the need for left-turn channelization in area of commercial and public access.
- ▶ SH-209 to Bridge Street - **Figure B-9**. This cross-section consists of two 3.6 m (12 ft) travel lanes, a 2.4 m (8 ft) paved shoulder on the west side, a 3.1 m (10 ft) shoulder on the east side, and a continuous 4.3 m (14 ft) two-way left-turn lane. The presence of the two-way left-turn lane is to address the need for left-turn channelization in area of commercial and public access. The widened shoulder on the east side of the highway serves pedestrian traffic and is separated from the travel lane by a painted divider.
- ▶ Bridge Street to Grand Avenue - **Figure B-10**. The cross-section consists of two 3.6 m (12 ft) travel lanes and 2.4 m (8 ft) paved shoulders. The cross-section tapers as it approaches the intersections at either end of this section to accommodate the geometric requirements of the intersections. Due to the higher number of intersecting roadways and driveways, a 4.9 m (16 ft) raised median is planned. The median alternates between two-way left-turn lanes in areas where it is necessary for left-turn access, and a raised vegetated median in areas where left-turn access will be constrained.



- ▶ Grand Avenue to Ice Box Canyon - **Figure B-11**. This cross-section consists of two 3.6 m (12 ft) travel lanes and 2.4 m (8 ft) shoulders. Due to the higher number of intersecting roadways and driveways, a 4.9 m (16 ft) raised median is planned. The median alternates between two-way left-turn lanes in areas where it is necessary for left-turn access and a raised vegetated median in areas where left-turn access will be constrained. A break in the median has been incorporated to allow fire trucks access to both north and southbound traffic lanes.
- ▶ Ice Box Canyon - **Figure B-12**. This section of MT-35 has been the location of several head-on collisions including several fatal crashes. The proposed changes include realigning the curve and a median barrier to separate the two directions of travel. This cross-section consists of two 3.6 meter (12 ft) travel lanes and 2.4 m (8 ft) shoulders.
- ▶ Ice Box Canyon to Chapman Hill Road - **Figure B-13**. This cross-section consists of two 3.6 meter (12 ft) travel lanes and 2.4 m (8 ft) shoulders.

Intersection Improvements

- ▶ Yenne Point Road and MT-35 - **Figure B-1**. Yenne Point Road approaches MT-35 at an awkward skew angle and on a steep hillside. In its current configuration, negotiating the turning movements is difficult. A left-turn lane is proposed in this area for two reasons: 1) to provide channelization for left-turning vehicles to slow down and wait outside the through lane, and 2) to provide additional width on Woods Bay Hill for passing vehicles stalled in icy conditions. Due to the number of turning vehicles and awkward configurations of the road, a right-turn lane is proposed for southbound travel to access Yenne Point Road.
- ▶ Sylvan Drive and MT-35 - **Figure B-1**. Sylvan Drive approaches MT-35 outside a substantial curve at the top of Woods Bay Hill and near numerous private driveways. To improve operations and to reduce confusion and potential conflicts, a two-way left-turn lane is proposed for northbound travel and a right-turn lane is proposed for southbound travel accessing Sylvan Drive. Additionally, the curve is proposed to be flattened to improve sight distance in the area.
- ▶ SH-209 and MT-35 - **Figure B-9**. SH-209 intersects MT-35 from the east. It provides a connection to Ferndale and to MT-83. This intersection is the first substantial intersection at the south end of the community of Bigfork. A roundabout for this intersection is proposed for several reasons: 1) A roundabout will serve as an identifier to the motorist that they are in an populated area; 2) It creates an environment to encourage motorists to travel at slower speeds; and 3) It provides better operating conditions for current and projected traffic flows.
- ▶ Bridge Street, Sunset Drive & MT-35 - **Figure B-9**. Bridge Street approaches MT-35 from an old one-lane bridge in Bigfork Village. It currently intersects MT-35 at approximately the same location as Sunset Drive, but the two roads are offset from each other creating an awkward intersection. It is adjacent to an embankment of MT-35 as it approaches the Swan River. This intersection has been the site of numerous crashes, several of which have been severe. Prior to this study, this intersection was identified as a location needing operational and safety improvements. A roundabout is proposed for this intersection for several reasons: 1) It eliminates the need for a left-turn lane from the north, thereby reducing the overall width on the constrained embankment section; 2) It serves as an identification to the motorist that they are in the populated area of Bigfork; 3) It creates an environment that will encourage motorists to travel at slower speeds. This is an area that has been the focus of many complaints about high vehicle speed; and 4) The elongation of the roundabout will encourage trucks to access Bigfork Village through signalized intersections.



- ▶ Grand Avenue, Holt Drive & MT-35 - **Figure B-10**. This intersection is currently a signalized intersection. Improvements to this intersection include: 1) Improved turn-lanes; 2) Improved approach angles to increase the visibility of oncoming vehicles particularly for those traveling westbound and turning right to northbound MT-35; 3) Raised medians to provide delineation and pedestrian refuge; and 4) Improved signalization, including signalization of right-turns to protect pedestrian crossing.
- ▶ Lake Hills Drive - **Figure B-10**. This proposed signalized intersection will address the issues of traffic operations and access management, and it will be designed with several revisions to numerous driveways in surrounding commercial area. To allow the intersection to function properly, all vehicles making left turns will be directed to the traffic signal. Left turn access at all other driveways will be eliminated. This requires reconfiguring the parking areas and traffic flow in the Lake Hills shopping center parking lots. A signal will be possible only with these proposed access changes.
- ▶ Chapman Hill Road - **Figure B-14**. A northbound left-turn lane is proposed for this intersection.

Spot Safety & Operational Improvements

- ▶ Reference Post 26.9 - **Figure B-1**. The curve at the top of Woods Bay Hill is proposed to be flattened to improve the visibility around the curve. Due to the populated and commercial nature of the immediate area, the super-elevation (cross-slope) is to be the minimum slope allowed for the design speed, 70 kph [approximately 45 mph]), this is currently planned to be flattened to 6%. The final cross-slope and radius of the curve will be determined in the final design phase.
- ▶ Reference Post 27.1 - **Figure B-2**. The existing roadway includes a broken-back curve (set of curves in the same direction separated by a short tangent). To improve driver expectation, drive-ability, and safety, this curve will be combined into one longer curve
- ▶ Reference Post 29.5 - **Figure B-7**. This curve is to be flattened to improve visibility, drive-ability and safety.
- ▶ Reference Post 30.4 - **Figure B-8**. Concerns about the safety of the equestrian crossing at this location were expressed during public involvement meetings and through coordination with the Public Advisory Committee. From early Spring through late Fall tourist groups from the Flathead Lake Lodge cross MT-35 this point on horseback at intervals of approximately fifteen to twenty minutes. Currently, advanced flashing warning signs and a striped crosswalk provide motorist notification. Vertical alignment of the roadway does somewhat limit visibility of the crossing, but stopping sight distances area available. Guides and wranglers have complained of numerous close calls between their horses and auto traffic. Historically, there has been one accident reported at this crossing. It has been recommended that an overhead crossing be constructed to facilitate safe equestrian travel. Final design will determine what type of grade separated or overpass crossing should be included as part of the preferred alternative.
- ▶ Reference Post 32.6 - **Figure B-13**. This curve in Ice Box Canyon is the location of numerous crashes including severe head-on crashes. The curve is proposed to be flattened to improve visibility. Additionally, a median barrier is proposed between the two travel directions to prevent vehicles from crossing into oncoming traffic.



Community Entry Treatments

Tourists entering populated areas within the communities are often traveling at high speeds and do not realize they have entered a developed area. Once the realization occurs that they have entered a developed area, the driver gradually slows. This type of travel tendency demands the need for “defined entries” when approaching the populated areas.

To address this issue, community entry treatments are planned at the entrances of each developed area. The treatments used are to aid the driver in identifying the populated areas and to help them to recognize that slower speeds are appropriate.

Community entry treatments are shown in **Appendix B** and are planned at the following locations:

- ▶ North Woods Bay Entry - **Figure B-1**. This entry treatment is located near Redgate Road. The roadway is split and diverted around a raised median, thereby alerting travelers of a changed condition and entry into a populated area. Street lights will be installed to provide night time visibility of the medians and other features.
- ▶ South Bigfork Entry - **Figure B-8**. This entry treatment is located near Flathead Lake Lodge Road. It is located at the south end of the populated area where the land use transitions into commercial. The roadway is split and diverted around a raised median alerting travelers of a change condition and entry into a populated area. While this is not a traffic control feature, it is proposed to be constructed to appear similar to roundabouts and other Bigfork roadway features. Street lighting will be installed to provide night time visibility of the median and other features.
- ▶ North Bigfork Entry - **Figure B-12**. This entry is located at the north end of Bigfork near the mouth of Ice Box Canyon. While this feature is not for traffic control, it will be similar in appearance to roundabouts and other Bigfork roadway features. Additionally, this entry is configured to allow passenger vehicles to turn around and return to Bigfork. This entry ties to the median barrier planned for Ice Box Canyon. Street lighting will be installed to provide night time visibility.

Non-Motorized Facilities

- ▶ Driftwood Lane to Red Gate Road - **Figure B-1**. A separated 1.8 m (6 ft) walkway proposed on the west side of the highway to address the need to accommodate pedestrian travel adjacent to the highway in Woods Bay. Cyclists are expected to use the 2.4 m (8 ft) shoulders in this section.
- ▶ Red Gate Road to Sylvan Drive (North) - **Figure B-1 to B-4**. A separated 2.4 m (8 ft) multipurpose path is proposed west of the highway.
- ▶ Sylvan Drive (North) to Flathead Lake Lodge Road - **Figure B-4 to B-8**. At Sylvan Drive an 2.4 m (8 ft) multipurpose path crosses the highway to the east side of the road. It then parallels the road for much of this length, except near Daphne Pond where it winds behind the pond and away from the highway. It returns to paralleling the highway at approximately Reference Post 29.7.
- ▶ Flathead Lake Lodge Road to SH-209 - **Figure B-8 to B-9**. A 2.4 m (8 ft) multipurpose path continues along the east side of MT-35 to SH-209. Non-motorized travelers, originating from Wayfarer’s State Park or Flathead Lake Lodge, make their way into or from Bigfork along MT-35 by use of the old highway. To that end, the Preferred Alternative includes: 1) A path connection on the old highway; 2) A separated path on the east side of MT-35; and, 3) A culvert style underpass below MT-35 just north of the Flathead Lake Lodge Road. A pedestrian underpass is located just north of Flathead Lake Lodge Road. This element was included in response to the community’s concern for the safety of non-motorized travelers and in recognition of higher traffic speeds and sight distance restrictions in this area.



- ▶ SH-209 to Bridge Street - **Figure B-9.** A 2.4 m (8 ft) multipurpose path is proposed on the east side of the highway. Due to constrained width, the path will be attached to the shoulder and is distinguished by a painted divider strip.
- ▶ Bridge Street to Grand Avenue - **Figure B-9 to B-10.** A 1.8 m (6 ft) barrier-separated walkway is proposed to be immediately next to the east side of the highway. The purpose of the barrier is to protect pedestrians on the Swan River bridge or bridge approaches. Cyclists are expected to use the 2.4 m (8 ft) shoulders in this section.
- ▶ Grand Avenue to Lake Hills Drive - **Figure B-10 to B-11.** A 1.8 m (6 ft) walkway is proposed on the west side of the highway. Cyclists are expected to use the 2.4 m (8 ft) shoulders in this section.
- ▶ Lake Hills Drive to the mouth of Ice Box Canyon - **Figure B-11 to B-12.** 2.4 m (8 ft) multipurpose paths are proposed on both sides of the highway.
- ▶ Ice Box Canyon to Chapman Hill - **Figure B-13 to B-14.** North of Bigfork no need was identified for pedestrian facilities, however, cyclists are expected to use the 2.4 m (8 ft) shoulders in this section.

Swan River Bridge - Figure B-10.

A new bridge is proposed to be included in the Preferred Alternative for the crossing of the Swan River. This bridge will span the main waterway opening. This bridge configuration was selected because it meets the following objectives: 1) The structure spans the main waterway opening without piers in the waterway and 2) The structure meets current design criteria including design for seismic conditions. A bridge without piers in the waterway was an especially important concern of the community.

The bridge will be configured with two 3.6 m (12 ft) travel lanes, 2.4 m (8 ft) shoulders and a 1.8 m (6 ft) walkway, which will be separated from traffic by a barrier. Cyclists are expected to use the 2.4 m (8 ft) shoulders in this section. The total width of the bridge is proposed to be approximately 15.6 m (51 ft). The analysis of bridge alternatives is described in further detail in the *Structural Selection Report* available by contacting Carter & Burgess, Inc. 801.355.1112.

Supporting Infrastructure Elements.

Numerous elements are required as part of the Preferred Alternative. These elements are preliminary design criteria and will be reviewed throughout the design process. The exact location of elements will be determined during final design. These elements include:

- ▶ Steepened slopes. The community expressed a strong need to minimize the overall width of the cross-section to allow the highway to continue to be consistent with its surroundings. The MDT Design Standards for Non-NHS Primary Roads governed clear zone criteria and slope design for this project. The community requested that in meeting these standards, minimal impacts be made to the forested areas bounding the road. Segments of MT-35 in this project were examined individually to determine where slopes would be too expansive, requiring a large right-of-way acquisition, or where they would have adverse effects on the visual quality of the segment. In these instances, a determination was made about the feasibility of increasing the slope rate (make slopes



steeper). A retaining wall was considered where it was not feasible to steepen slopes beyond the geotechnical recommendations.

- ▶ 'V'-bottomed ditches. Montana Department of Transportation standards include a 3 m (10 ft) flat bottom to accommodate drainage, mowing, maintenance, and allow for slope movements. To minimize the width of the overall cross-section, it was determined through the stakeholder process and approved by MDT that a narrow 'V'-bottomed ditch is to be included in the Preferred Alternative. The 'V'-ditches will be located outside of the clear zone
- ▶ Retaining walls. Due to the steep terrain, extensive retaining walls are needed to construct the Preferred Alternative. The approximate locations of the retaining walls are shown in **Appendix B**. The exact location of retaining walls will be determined during final design.
- ▶ Drainage. Numerous ditches and culverts are necessary to safely convey drainage along and across the highway.

2.5 The Preferred Alternative & Context Sensitive Design

Chapter two describes the alternatives that were considered to meet the following elements of the Purpose and Need:

- ▶ Address operational and safety issues associated with alignment deficiencies.
- ▶ Address operational and safety issues for slow or disabled vehicles, associated with steep grades.
- ▶ Address the need for facilities for non-motorized mobility and safety for pedestrians and bicyclists along the corridor.
- ▶ Address safety concerns associated with lack of adequate shoulders and clear zones.
- ▶ Address operational and safety deficits associated with poor definition and configuration of access points.
- ▶ Upgrade the Swan River Bridge to meet seismic and safety standards, provide for pedestrian and bicycle movements, and the continued life and function of the bridge.
- ▶ Address the deteriorating condition of the roadway pavement and the bridge structure.

A partnership was developed between the community and MDT in order to create alternatives that best meet the elements of Purpose and Need. The philosophy of Context Sensitive Design (CSD), which approached the process of creating solutions by seeking public understanding and ownership of the development of alternatives aided in reaching the decisions regarding the Preferred Alternative. This process ensures that the Preferred Alternative not only meets the transportation needs, but equally important, it reflects the values and goals of the affected communities.

In Context Sensitive Design, the parties involved, through a collaborative process, evaluated the Preferred Alternative so that it successfully addressed the Purpose and Need elements, meets required design standards, and fulfills the three CSD principles that guide the decision making process. These principles are:



1) Meet Transportation Needs-

Transportation based needs include: addressing current and projected congestion, meeting future travel demand, improving safety, and providing facilities for non-motorized traffic.

2) Compatibility With the Natural and Built Environment-

Collaboration with local government, resource agencies, and communities along MT-35 ensured that those elements of concern for the natural and built environments along the roadway were identified and that the Preferred Alternative is compatible with all elements of the surrounding environment.

3) Be an Asset to the Community-

The Preferred Alternative was developed through intimate collaboration with the community, such that the values of each of the Bigfork, Woods Bay, and East Shore Flathead communities were incorporated into all steps of the decision making process.



Chapter Three: Affected Environment, Impacts & Mitigation Measures

3.1 Land Use Zoning & Land Use Planning

3.1.1 *Affected Environment*

The majority of land use in the region is composed of forest and grasslands, some of which are grazed, and crop land in the northern portion of the region. **Figure 3-1** illustrates a general representation of regional land use.

The majority of the study area is coniferous forest with patches of open grasslands. The terrain is mountainous. There are a small number of low-density residential developments scattered throughout. The commercial areas are for the most part concentrated in the communities of Bigfork and Woods Bay. Small sections of agricultural production are located primarily on the northern half of the corridor. The existing land use is shown in **Figure 3-2**.

3.1.2 *Zoning*

The southern part of the study area is under the jurisdiction of Lake County, including the community of Woods Bay. This area is within the Lake County General Plan but is not within any specific zoning jurisdiction. Just to the south of the study area is the East Shore Zoning District of the North Lake County Planning Unit. The northern part of the study area, including the community of Bigfork, lies in the jurisdiction of Flathead County. This area is within the Bigfork Area Land Use Plan, which is an addendum to the Flathead County Master Plan. Both plans describe the zoning practices for the area and encourage the residents of both counties to adopt zoning plans. Current zoning along the corridor is shown in **Figure 3-3**. No zoning is shown in Lake County because the project is outside of any specific zoning district.

3.1.3 *Land Use Plans*

3.1.3.1 Flathead County Master Plan. The 1987 Flathead County Master Plan (FCMP) has been divided into four segments to reflect the trends in rural growth. These segments are “Rural Communities”, “Water and Waterfront Development”, “Residential Development”, and “Commercial/Industrial Development”. The following list describes the goals for each of the sections of the FCMP.

1. “Rural Communities” – To maintain a semi-rural lifestyle, while providing an adequate level of urban services, convenient retail trade, employment opportunities and residential housing sites.
2. “Water and Waterfront Development” – To acknowledge the aesthetic considerations, environmental limitations, and general fragileness of river and lakeshore areas when being developed, and to protect and preserve the county's lakes, rivers and streams.
3. “Residential Development” – To have planned residential developments that meet market demands, place minimal strain on public services and mitigate any adverse impacts.
4. “Commercial/Industrial Development” – This segment of the FCMP has several goals. The first is to have viable, compact, rural commercial service centers located in the existing rural communities that will provide essential and convenient trade and services to the surrounding population. The second is to have well planned industrial centers located adjacent to existing services and population centers. The third is to keep roads and highways in the County uncluttered and uncongested by the negative effects of strip development. The fourth goal is to maintain a diversified economic base through the attraction and location of new business and industry in the County.



Figure 3-1 Study Area Regional Land Use

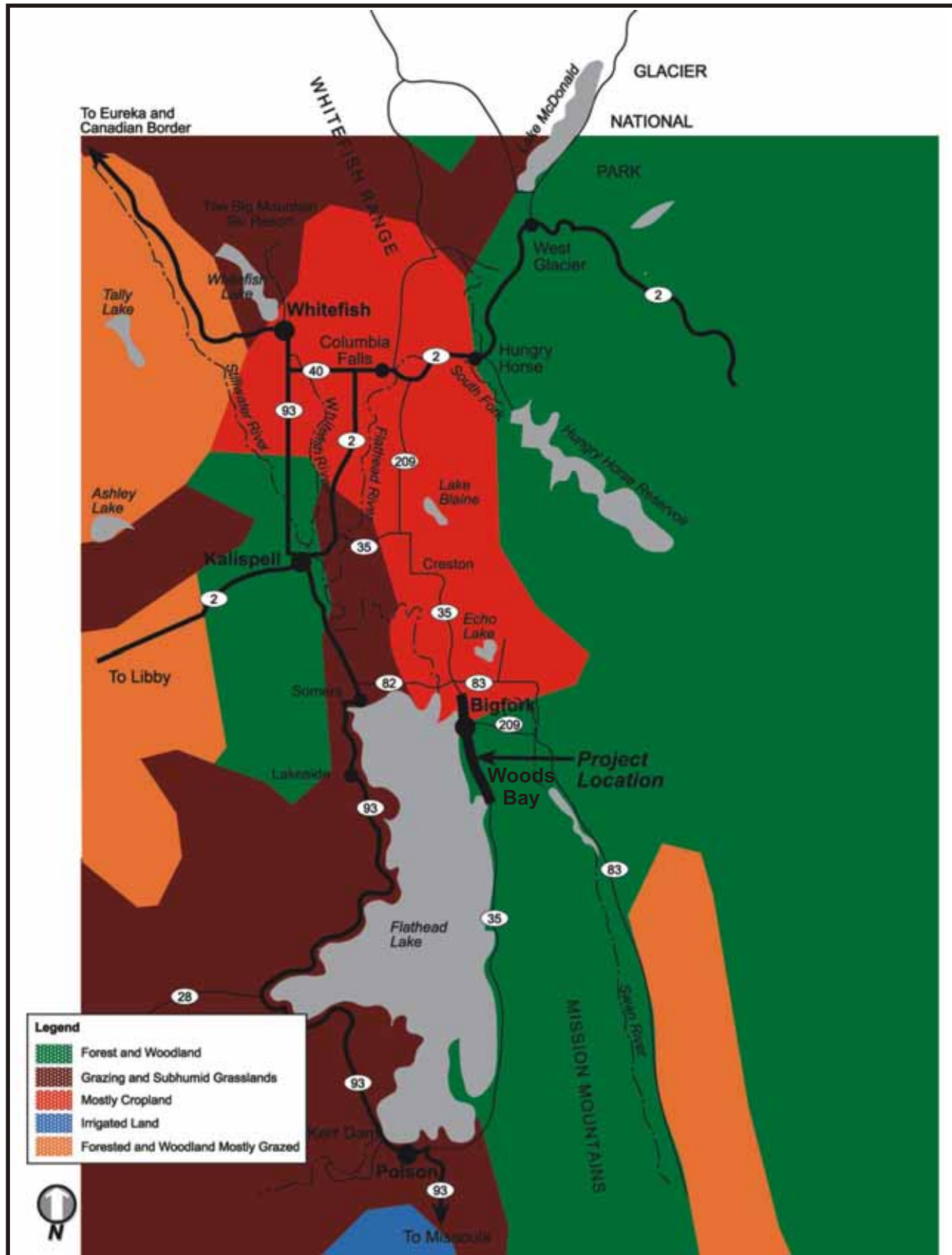




Figure 3-2 Existing Land Use

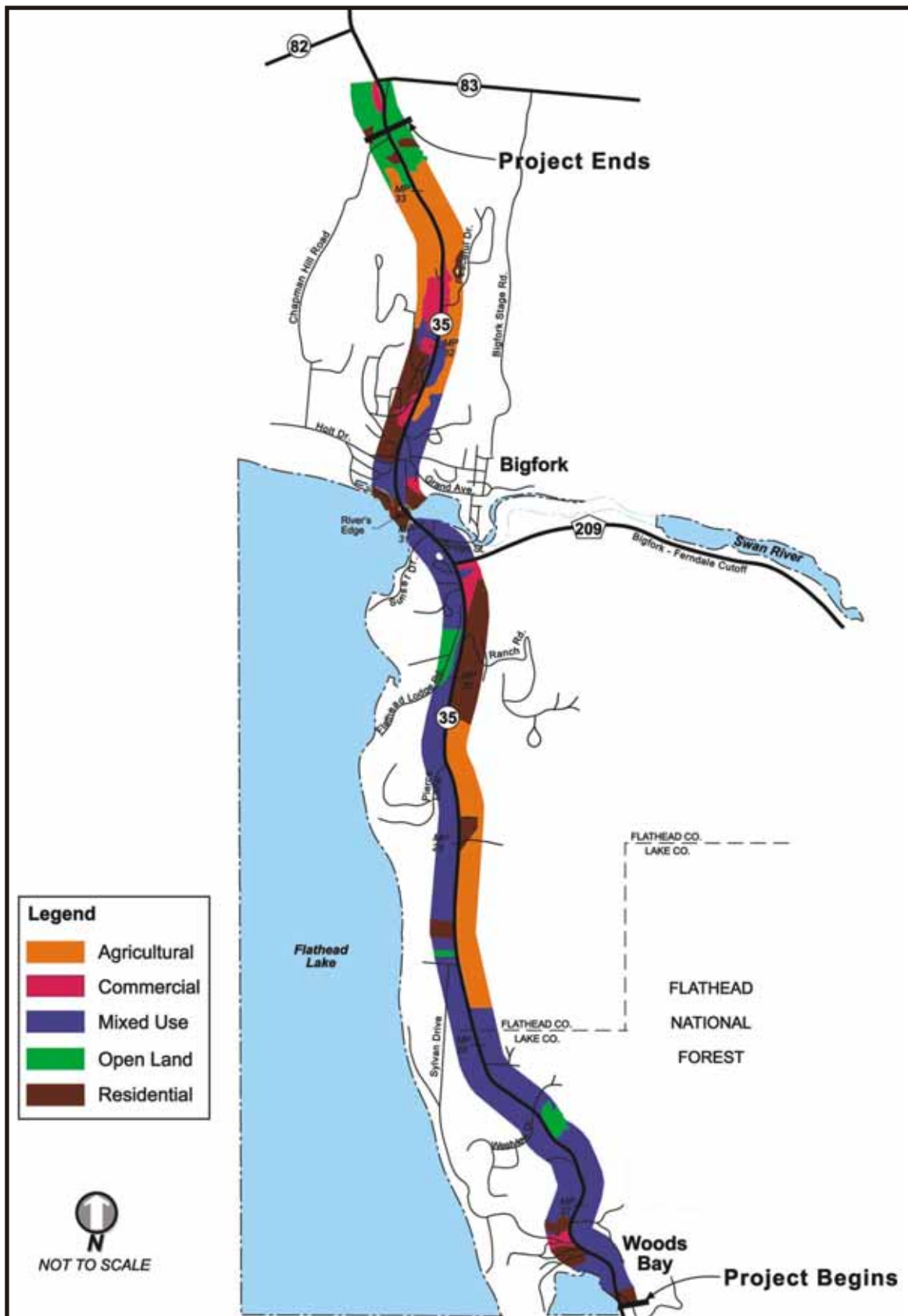
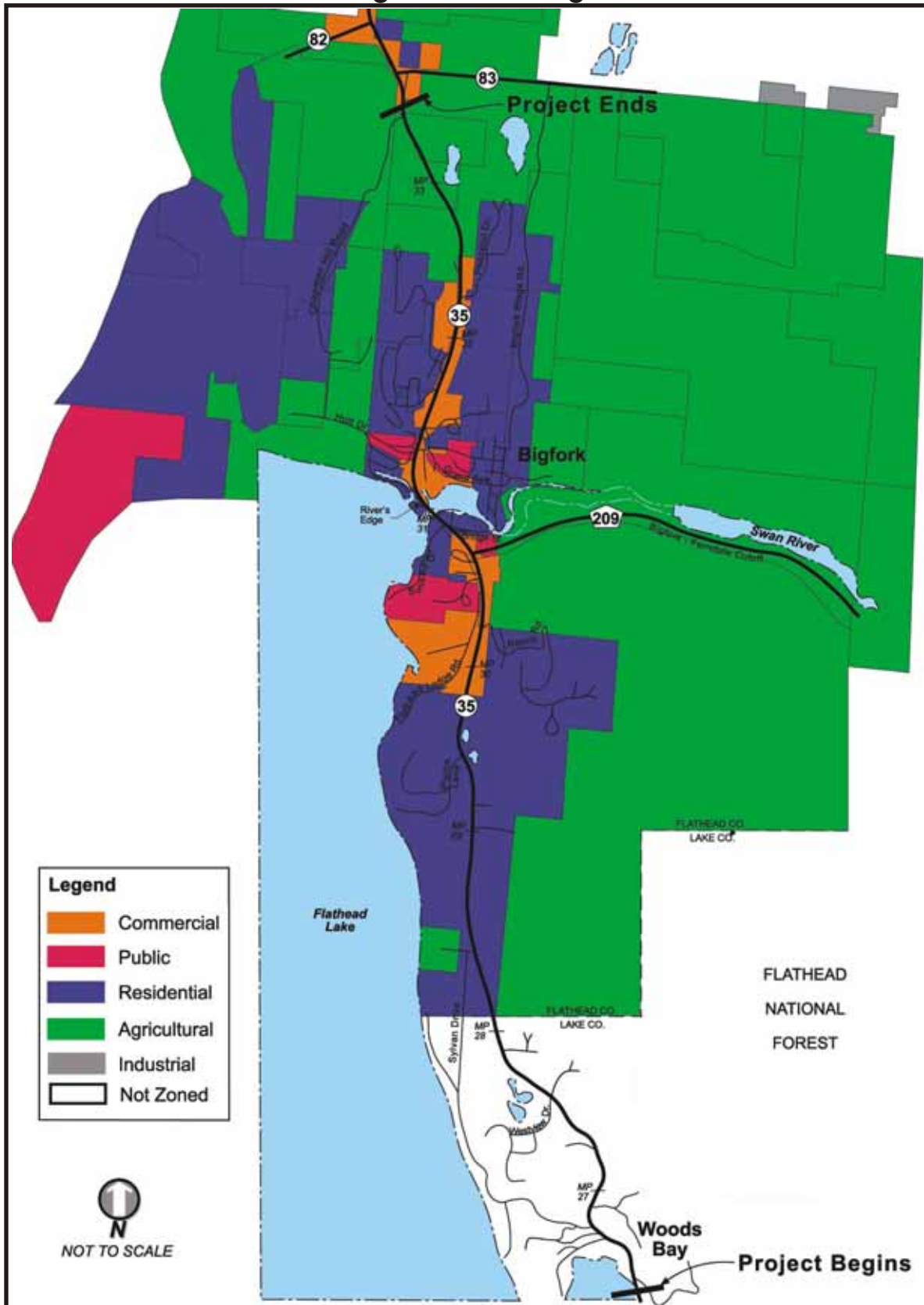




Figure 3-3 Zoning





3.1.3.2 Bigfork Area Land Use Plan. The 1993 Bigfork Area Land Use Plan contains a set of general goals for consideration when planning the land use for the area.

1. The first goal is to strive for orderly, controlled, environmentally compatible growth with social and economic balance to accommodate increased population through development.
2. The next goal is to protect the unique natural features and scenic views in the Planning Area through the strategic placement of developments, conservation easements, proper setbacks and creative planning techniques.
3. The third goal centers on maintaining long term diversified agriculture land use, open space and scenic view qualities of the Planning Area.
4. Finally, the last goal is to improve and augment those community attributes that will retain the unique quality and characteristics that enable Bigfork to function as a sought after resort village.

3.1.3.3 Lake County General Plan. According to the 1988-1995 Lake County General Plan, there are three sets of general county goals that affect land use. They are “Economic & Social”, “Resource & Environmental” and “Government & Infrastructure”.

1. “Economic & Social”

- Increase public awareness and participation in the county planning process.
- Identify citizen concerns and desires for present and future growth and development and incorporate these concerns into a land use plan that is reasonable, flexible and balanced.
- Identify and maintain the values that characterize the rural and recreational lifestyle of area residents.
- Protect and enhance property values by encouraging quality development and avoiding incompatible uses.
- Protect the individual's right to develop property; but, balance that right with the community's interest in orderly and quality growth and development.
- Identify and encourage economic development that is compatible with the area and provides jobs for local residents.
- Identify the amount and type of available housing, and encourage development that will provide adequate housing for residents on low and moderate incomes.
- Develop growth policies and guidelines in accordance with the needs and desires of residents within various local areas of the county.

2. “Resource & Environmental”

- Identify the existing parameters of water quality in the County lakes, rivers, streams and underground sources; maintain a high standard of water quality.
- Identify the existing parameters of air quality in the County; maintain a high standard of air quality.
- Identify the important aspects of the natural scenic character of the county; maintain a high standard of scenic quality.
- Identify the flood plains of rivers and streams; maintain the natural character of the flood plains to the extent of avoiding flood hazards.
- Identify hazard areas associated with characteristics of geology, soils, topography and groundwater; maintain the natural characteristics of these areas to the extent of avoiding such hazards.
- Identify sensitive wildlife, bird, and fish habitat; maintain the natural characteristics of these areas to the extent of protecting these species.
- Identify prime and good agricultural land; encourage continued use of these lands for agricultural production.



- ▶ Identify important watersheds that provide domestic water supplies in the communities; protect the communities water supplies from pollution and/or contamination.
- ▶ Coordinate with Federal, State, Tribal and local agencies and private corporations to continue to monitor natural resource conditions in the County to insure that a high standard of environmental quality is maintained.

3. "Government & Infrastructure"

- ▶ Promote cooperation and coordination between County and Tribal governments to minimize duplication of public programs, services and facilities; provide better services to all residents.
- ▶ Improve County services to be more efficient and economical.
- ▶ Promote attractive and well-planned commercial, residential and industrial development that will benefit the community and will not place an undue burden on local public services.
- ▶ Identify the needs for domestic water supplies in existing communities; develop strategies to improve the availability and quality of domestic water supplies.
- ▶ Improve sewage disposal and treatment in existing communities.
- ▶ Identify the needs and priorities for improvement of county roads; develop strategies to improve and maintain these roads.
- ▶ Identify the need for rural fire protection and develop strategies to assist local fire departments to improve fire protection services.
- ▶ Identify the needs for indoor and outdoor recreation and park facilities; develop strategies to improve these facilities.

3.1.4 *Land Use Impacts*

3.1.4.1 No-Action Alternative. This alternative would have no impact on current land uses, zoning or future land use planning in the study area. It would result in continued current growth trends and development patterns.

3.1.4.2 Preferred Alternative. This alternative is consistent with land use policies for Lake and Flathead Counties, within the study area, and with many of the goals identified in the Flathead County Master Plan, the Bigfork Area Land Use Plan and the Lake County General Plan. The improvements will not have long-term impacts to land use within Bigfork or Woods Bay and will not change the semi-rural and recreational lifestyles, waterfront developments, and the natural and scenic landscapes protected by the Flathead County Master Plan and the Lake County General Plan. The Preferred Alternative will enhance current land uses by providing safer and better access to forests, agricultural land, residential subdivisions, and commercial developments along the corridor.

3.1.5 *Mitigation*

No mitigation for land use impacts would be required for the Preferred Alternative.



3.2 Prime & Unique Farmlands

3.2.1 *Affected Environment*

The area along MT-35 is predominantly occupied by evergreen forests with scattered pockets of open land.

3.2.1.1 Prime Farmland. According to the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS), several soils designated as "prime farmland", "prime farmland, where irrigated", and "farmland of statewide importance" are located along this corridor within the study area. (See **Figure 3-4**). No "unique farmlands" or "farmlands of local importance" are designated within the study area based on soils information from the NRCS.

3.2.2 *Farmland Impacts*

Direct impacts to "prime farmland" or "farmland of statewide importance" could occur whenever the surface area is paved with an impervious material, covered by fill, or removed by excavation to accommodate the installation of the roadway. Also, the purchase of right-of-way can inhibit the use of the area for agricultural purposes, although, it may be physically untouched.

3.2.2.1 No-Action Alternative. This alternative would result in no impacts to the "prime farmlands" and "farmlands of statewide importance" that are located along MT-35.

3.2.2.2 Preferred Alternative. Soil maps and a corresponding list of which soil types are designated "prime farmland" and "farmland of statewide importance" for Flathead and Lake Counties were obtained from the NRCS to determine impacts. The area impacted as a result of the Preferred Alternative is 8 hectares (19.7 acres). A Farmland Conversion Impact Rating form (#AD-1006) was completed (included in **Appendix C**) in accordance with the Farmland Protection Policy Act (FPPA 7 U.S.C. 4201, et seq.). The Total Points for the proposed project's Site Assessment Criteria are 115, which is less than 160. Therefore, under the provisions of 7 CFR 658.4 (c), no additional consideration for protection is necessary.

3.2.3 *Mitigation*

No mitigation is required for impacts to farmlands.

3.3 Social

3.3.1 *Affected Environment*

Data was collected from Flathead and Lake County on population, demographics, race and ethnicity, housing, schools, emergency services, and public utilities.

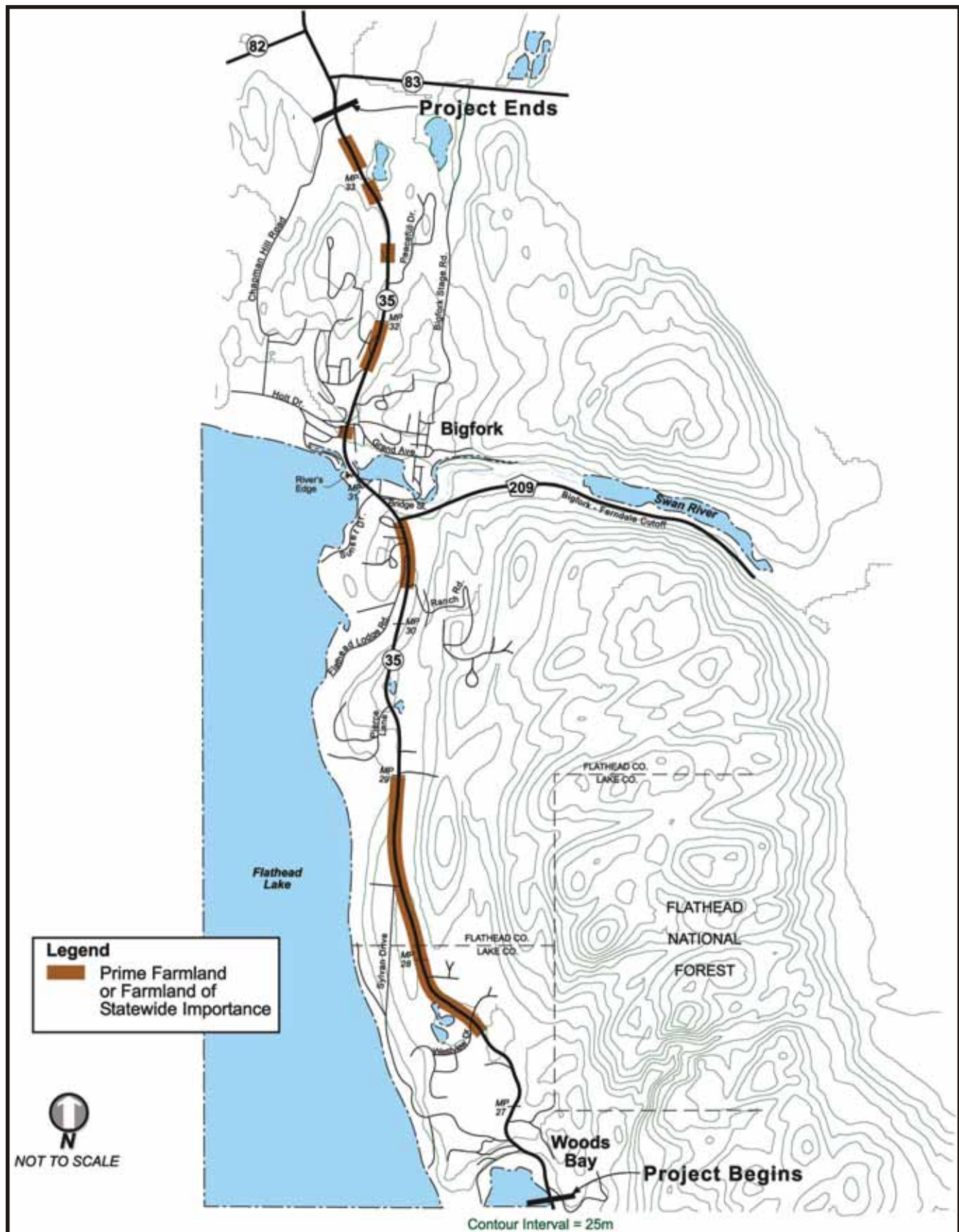
The primary school district within the study area is the Bigfork Public School District, (see **Figure 3-5**). The district is comprised of the Bigfork High School, Bigfork Junior High, and Bigfork Elementary School. All three schools are located on Commerce Street in Bigfork. All grades K-12 are covered. MT-35 is a major school bus route that has numerous stops in both directions throughout the study area.

The Swan River School is located outside the study area at the intersection of MT-83 and Echo Lake Road. This school is the only school in the Swan River School District and only provides schooling for K-8th grades. 9th-12th grade students go to Bigfork High School. There are no school bus services for the Swan River School District.

The Flathead Electric Co-Op, Inc. is the sole supplier of electrical power in the region. Water and sewer services are provided by Bigfork Water & Sewer District. Northwest Disposal Service provides waste disposal. CenturyTel provides telephone services to the area.



Figure 3-4 Prime Farmland





The Kalispell Regional Medical Center is the closest medical facility to the study area. The facility is located approximately 32 km (20 mi) to the northwest of Bigfork. The Bigfork Quick Response Unit and the Bigfork Volunteer Fire Department, are both located on Grand Avenue in Bigfork, as shown on **Figure 3-5**, and provide 911 emergency response services for the area. MT-35 is a major route for emergency vehicles going to and from the Bigfork/Woods Bay area. Law enforcement services within the study area are provided by the Flathead County Sheriff Department within Flathead County and by the Lake County Sheriff Department within Lake County. The Sheriff's Department in Kalispell (Flathead County) is the closest department to the study area.

The year round Bigfork population is estimated to be approximately 5,000. According to the Census Bureau, Bigfork and Woods Bay had year 2000 populations of 1,421 and 748, respectively. An overview of the population trends in Flathead and Lake Counties is provided in **Table 3-1**.

Table 3-1							
Population Trend Overview							
Population	% Increase from 1990 to 2000	% Increase from 2000 to 2020 (est.)	1990 Population	2000 Population	2005 Population (est.)	2010 Population (est.)	2020 Population (est.)
Lake County	26.0%	35.4%	21,041	26,507	28,880	31,190	35,890
Flathead County	25.8%	38.8%	59,218	74,471	81,940	89,080	103,390
Montana	12.9%	19.6%	799,065	902,195	937,700	981,270	1,079,060

As shown in **Table 3-1**, Flathead and Lake Counties are experiencing rapid population growth. This growth is expected to continue at a higher rate in both counties than for the State of Montana overall. The populations of Flathead and Lake County are projected to increase 38.8% and 35.4%, respectively, from the year 2000 to 2020. The State of Montana's population growth in the same time period is projected to be noticeably less at 19.6%.

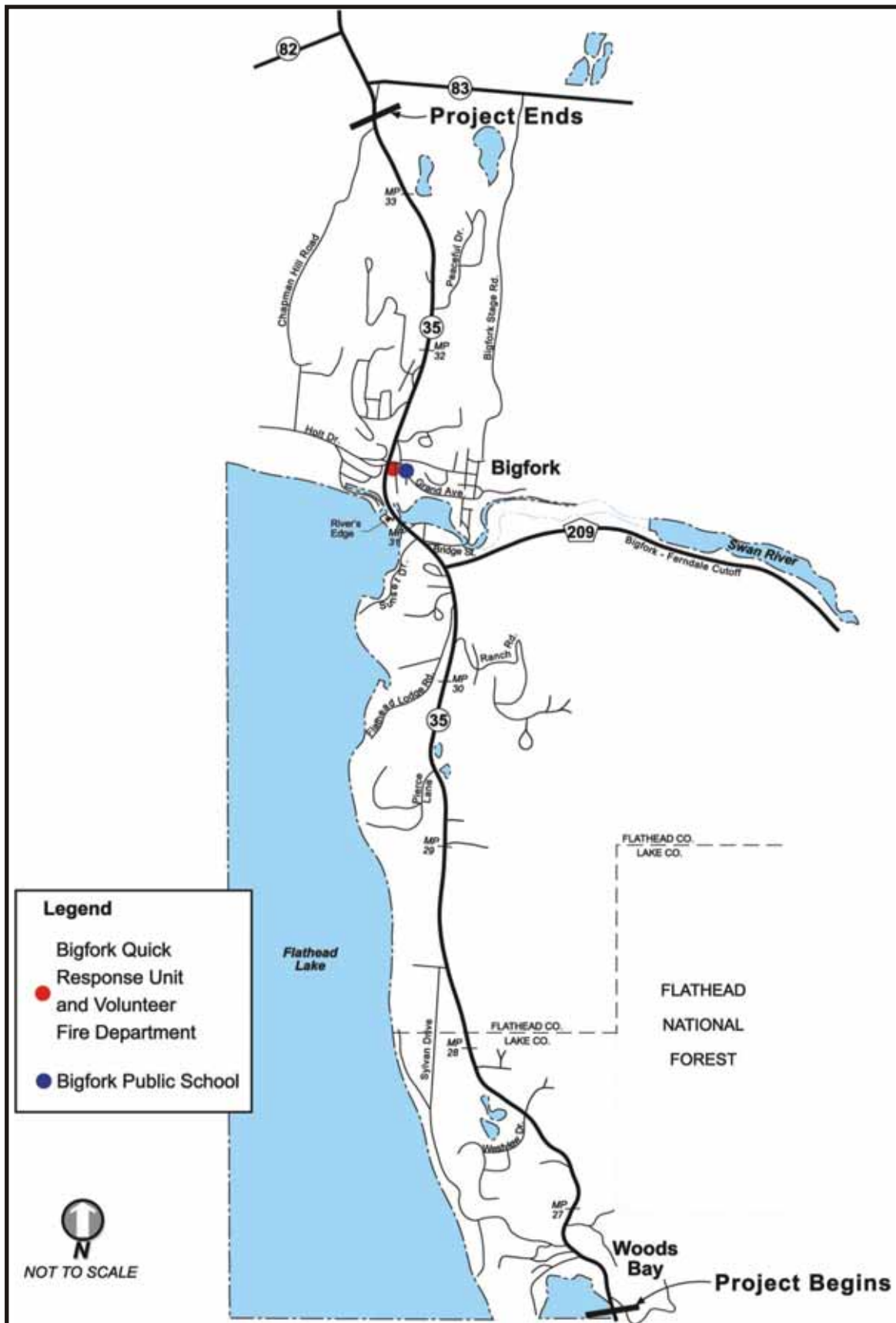
An overview of the 2000 population characteristics is provided in **Table 3-2**.

Table 3-2							
Population Characteristics							
Analysis Area	Total Persons	Total Households	Persons per Household	% Caucasian	% Native American	% Hispanic or Latino	% Other
Bigfork	1,421	652	2.08	97.3%	1.1%	1.5%	1.6%
Woods Bay	748	325	2.30	95.6%	0.04%	3.2%	3.9%
Flathead County	47,471	29,588	2.48	96.3%	1.1%	1.4%	2.7%
Lake County	26,507	10,192	2.54	71.4%	23.8%	2.5%	4.8%
Montana	902,195	358,667	2.45	90.6%	6.2%	2.0%	3.2%

As shown in **Table 3-2**, the population within the study area is predominantly Caucasian. The percentage of minorities is noticeably less within Bigfork and Woods Bay than within either Lake County or the State of Montana. Lake County has a large population of Native Americans, mostly located outside of the study area.



Figure 3-5 Community Facilities





3.3.2 *Social Impacts*

3.3.2.1 No-Action Alternative. This alternative will not impact populations or demographics in the study area. As congestion increases, impacts to emergency services, school bus services and other social services will occur.

3.3.2.2 Preferred Alternative. This alternative would not substantially affect population growth trends within the study area. As described in Section 2.1, the Preferred Alternative was developed in a collaborative process with the community; and reflects, complements, and serves the values of the community. Tourism would continue to be a major factor influencing growth within Flathead and Lake Counties, especially in Bigfork. Seasonal populations would continue to exceed that of the year round permanent population of Bigfork.

Any substantial increase in community services would be in response to projected growth in permanent population and employment demands. Improved safety and access may bring more tourists into the area, resulting in a slightly increased demand on community services; however, the permanent population determines the level of social services available, as they are more likely than tourists to use local community services and facilities. It is also important to note that growth in the permanent population and employment is directly related to growth in tourism and tourist related service demands.

During construction, the Preferred Alternative may have minor, short-term impacts to access. Local travel for the permanent population, tourists, and service vehicles may be temporarily delayed during construction periods. Delays are estimated to range from five minutes during the typical construction activities, to possibly thirty minutes during specific and isolated construction events.

The Preferred Alternative would have positive long-term impacts to the study area. Reduced travel times associated with improvements to accessibility and mobility, (including more timely responses for emergency service) vehicles are some examples of the positive impacts. Other positive impacts would result as congestion decreases and accessibility improves, for example, an increase in property values within the study area, enhanced safety for school bus services and better access to community services.

3.3.3 *Mitigation*

The majority of social impacts have positive effects on the study area. All others are associated with population growth and will occur with or without modification of MT-35. Therefore, no mitigation is required.

3.3.4 *Environmental Justice & Title VI*

On 11 February, 1994, President Clinton issued Executive Order 12898 requiring federal agencies to incorporate Environmental Justice considerations into the NEPA planning process. The purpose of this order is to ensure that low-income households, minority households, and minority businesses do not suffer a disproportionate share of adverse environmental impacts resulting from federal actions.

3.3.4.1 Minority Populations

According to the 2000 Census data, both the Woods Bay area and the Bigfork area have less than 5% minority populations. Census block data for Lake County within or near the study area indicates less than 2% of the population as minority, while Flathead County census block data reflects than 5% of the population in or near the study area as a minority group.

3.3.4.2 Low-Income Populations

There is no year 1990 or 2000 census data on income available for the study area. In 1990, the county planning office in Kalispell identified Bigfork as a “non-census” designated place. The Census Economic Information Center (CEIC) calculated information for the year 1990 due to the lack of available census information at this level.



According to CEIC, the town of Bigfork is comprised of census tract 13, block groups 5 and 6. In 1989, the median household income for Tract 13 was \$24,198.00; for block 6, \$24,375.00; for block 5, \$24,191.00; and for Flathead County as a whole, \$24,145.00. It can be deduced from this information that both blocks have a higher median income, as opposed to Flathead County as a whole; concentrations of low-income population are not present within the Bigfork study area.

Flathead County as a whole is 14.5% below poverty level. There are two tracts within Flathead County that are 24.6% below and 23% below poverty level. These are tracts 1 and 10 respectively. Tract 1 is located entirely within Glacier National Park and tract 10 is within the city limits of Kalispell, both areas are far from the study area.

In Lake County, 21.4% of the population is below poverty level; this is due to populations within the Flathead Reservation, which falls far outside of the study area.

No low-income or minority communities have been identified within the study area; therefore, no environmental justice impacts would occur. As such, no mitigative measures for either the No-Action Alternative or the Preferred Alternative are necessary.



3.4 Economic

3.4.1 Affected Environment

Bigfork and the surrounding community have an economy based heavily on tourism. There are numerous art galleries and gift shops along the main streets in Bigfork. There are also several recreational guide and outdoor expedition services, resort centers, and lodges located within the area that attract destination-oriented tourists and outdoor enthusiasts.

According to the Montana Department of Labor & Industry, the unemployment rate in September 2001 for the State of Montana was 3.6%, compared with 4.0% the previous September. The unemployment rate in September 2001 for Flathead County was 4.0% compared to 4.5% the previous September. The unemployment rate for Lake County was 6.0%, compared to 5.0% the previous September.

The Montana Department of Commerce states that earnings of persons employed in Montana increased by an average annual growth rate of 5.8% from 1988 to 1998, and 5.2% from 1998 to 1999. Flathead and Lake Counties had average annual earnings growth rates of 7.1% and 6.8%, respectively, between 1988 and 1998. From 1998 to 1999 Flathead County had a decrease in earnings of 1.0%, while Lake County had an increase of 6.7%. **Table 3-3** shows the largest industry sectors for the counties and the state.

Table 3-3			
1999 Industry Earnings			
	Largest Industry (% of Earning)	2nd Largest Industry (% of Earning)	3rd Largest Industry (% of Earning)
Flathead County	Services 28.0%	Durable Goods Manufacturing 14.6%	Retail Trade 13.7%
Lake County	Services 34.5%	State & Local Government 13.2%	Retail Trade 13.0%
Montana	Services 27.0%	State & Local Government 14.2%	Retail Trade 11.8%
Source: Montana Department of Commerce, BEA Regional Facts (BEARFACTS)			

According to the State of Montana Bureau of Economic Regional Facts (BEARFACTS), the per capita income for Flathead and Lake Counties were \$22,265 and \$17,234, respectively in 1999. The per capita income for the State of Montana was \$21,997 for the same year. The Flathead County per capita income ranked 13th in the State and was 101% of the State average. Lake County per capita income ranked 43rd in the State and was 78% of the State average (BEARFACTS, 1999). Economic data from the 2000 Census for the Bigfork and Woods Bay is currently not available.

According to the Northwest Montana Association of Realtors' (NMAR) Multiple Listing Service, the average selling price of homes in the Bigfork area was \$189,584 for the year 1999.



3.4.2 *Economic Impacts*

3.4.2.1 No-Action Alternative. This alternative would not result in major impacts to existing economic conditions within the study area. However, since the No-Action Alternative does not solve existing or future traffic congestion or safety problems on MT-35, worsening conditions could deter tourists from patronizing local businesses.

3.4.2.2 Preferred Alternative. This alternative would result in short-term benefit to the local area economy by supplying residents of the Bigfork area with job opportunities related to the construction of the roadway improvements. Construction would also affect expenditure patterns by local residents and tourists. Local travel for residents, tourists and service vehicles would be interrupted during construction along with other general traffic throughout the project construction period. The Preferred Alternative would provide safer access to the area by tourists; but, because overall capacity is not increased, no increase in tourism is expected to occur as a result of this project. The Preferred Alternative was developed in collaboration with the community and is consistent with community goals identified during public coordination efforts.

3.4.3 *Mitigation*

No mitigation for economic impacts is required.

3.5 Non-Motorized Travel (Pedestrian & Bicycle)

3.5.1 *Affected Environment*

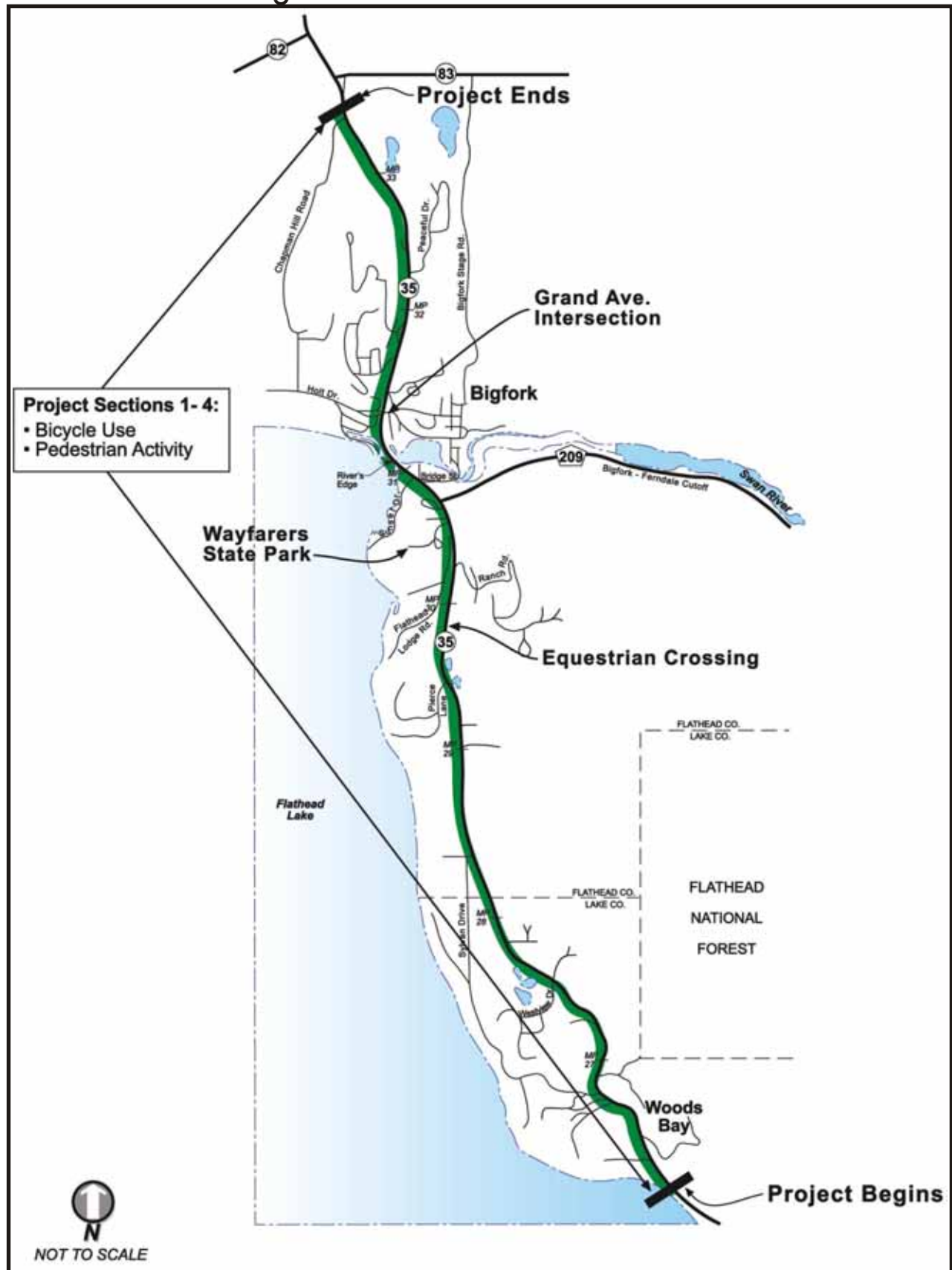
Due to a lack of adequate roadway shoulders and sidewalks, MT-35 does not provide a safe or functional travel course for pedestrians or bicyclists. This discourages regular walking and cycling along this roadway and is not consistent with the communities' vision for a bicycle and pedestrian friendly facility to complement the resort features within the area.

While pedestrian and bicycle activity can, and does occur throughout the study corridor along MT-35, there are several areas of more concentrated bicycle and pedestrian use. Equestrian activity also occurs as indicated below. **Figure 3-6** shows the current locations of activity and facilities in the corridor:

- ▶ Woods Bay. Woods Bay is a developed area with a mix of commercial and residential uses. There are restaurants, gas stations, lodges, and stores. People frequently cross MT-35 at RP 28.9 to reach the Woods Bay Market. This location has insufficient sight distance and deficient alignment.
- ▶ There is pedestrian activity throughout and between the entire Bigfork and Woods Bay areas along MT-35 as evidenced by worn paths on both sides of MT-35. This pedestrian use generally ends at the entrance to Ice Box Canyon.
- ▶ Bicycle Use. There is recreational bicycle use along the entire length of the project corridor. Public input indicates strong support for facilities for both recreational and commuter uses.
- ▶ Equestrian Crossing. There is a designated equestrian crossing near RP 30, which serves Flathead Lake Lodge located to the west of MT-35. The resort uses the crossing several times daily when groups of guests cross during rides on trails to the east of MT-35. A crosswalk is painted on the pavement and manually operated flashing warning signs in advance of the crossing, which are turned on and off by Flathead Lake Lodge guides.
- ▶ Wayfarers State Park. Public input indicates that pedestrians cross the highway at the entrance to Wayfarers State Park near RP 30.5, or via Bridge Street and Sunset Drive. This route is discouraged since it crosses private property at the end of Sunset Drive.
- ▶ Grand Avenue Intersection. Pedestrians routinely use crosswalks at the Grand Avenue intersection. One use includes students accessing the schools east of MT-35 which generates concern for the safety of students crossing at Grand Avenue.



Figure 3-6 Non-Motorized Provisions





3.5.2 *Non-Motorized Travel Impacts*

3.5.2.1 No-Action Alternative. This alternative would prolong the inadequate conditions for non-motorized travel that presently characterize MT-35. As vehicular traffic continues to increase along this roadway, the environment for non-motorized travel would further deteriorate.

3.5.2.2 Preferred Alternative. This alternative would enhance travel conditions for pedestrians, cyclists, and equestrians. Reducing the existent substandard curves and widening the facility to accommodate paved shoulders would produce safer cycling and walking accommodations along the shoulder. Pedestrian and bicycle travel is further enhanced in Segment Two through construction of the separated multi use path. Sight distances would also be improved with construction of the preferred alternative, allowing motorists to better see bicyclists and pedestrians. A grade-separated equestrian crossing at RP 30.4 will be constructed to facilitate safe travel of horses and people across this section of MT-35. See Section 2.4 of this document for details of non-motorized travel features forwarded to the Preferred Alternative.

3.5.3 *Mitigation*

No mitigation measures are proposed for pedestrians, bicyclists, and equestrians due to the positive nature of impacts resulting from the Preferred Alternative.

3.6 Right-of-Way & Relocation

3.6.1 *Affected Environment*

The existing MDT owned right-of-way or easement along MT-35 in the southern portion of the study area (Segments 1 and 2) is approximately 24 to 27 m (79 to 89 ft) wide. The northern section of the study area (Segments 3, 4 and 5) has an existing right-of-way that varies in width. The right-of-way varies from approximately 49 to 73 m (161 to 240 ft) in width throughout the community of Bigfork. North of Bigfork, the right-of-way narrows to approximately 18 m (59 ft) wide and remains fairly consistent through the end of the project. Privately owned land will need to be acquired for right-of-way where associated with the Preferred Alternative.

3.6.2 *Right-of-Way Impacts*

3.6.2.1 No-Action Alternative. No new right-of-way or easements will be required with the No-Action Alternative.

3.6.2.2 Preferred Alternative. MDT owns right-of-way, which will be fully utilized in the construction of the Preferred Alternative. Additional right-of-way is necessary throughout the project in many areas. Approximately 16.6 hectares (41.1 acres) of new right-of-way from 260 parcels will need to be acquired. In addition to undeveloped parcels of property needed for the expansion of the right-of-way, some residential and commercial developments will be affected. Impacts to properties include damages, due to the proximity of the new right-of-way line. These damages may not directly affect the existing buildings on the remaining property, but could affect the access, utility, and remaining property value. Preliminary right-of-way requirements show that approximately seven commercial developments and five residential developments could be subject to damages due to the proximity of the proposed right-of-way line.

3.6.3 *Mitigation*

All right-of-way acquisition will be done in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended in 1989. All affected property owners will be compensated at fair market value for their property.



3.7 Parks & Recreation

3.7.1 *Affected Environment*

The study area includes Wayfarers State Park and the Bigfork Fishing Access Site as shown in **Figure 3-7**. Wayfarers State Park is located approximately 0.8 km (0.5 mi) south of Bigfork on MT-35, covering the area between the highway and the shore of Flathead Lake. This 27.5 hectare (68 acre) site provides camping facilities (from May to September), picnic, boating, and fishing facilities (year-round). The Bigfork Fishing Access Site is located along the Swan River at the southeast corner of the MT-35 Swan River Bridge. This 0.66 hectare (1.64 acre) site is a seasonal (day-use only) facility with a boat ramp, allowing fisherman and boaters access to the Swan River and Flathead Lake. The Bigfork Fishing Access and Wayfarers State Park were both purchased in part with Land and Water Conservation Funds, and are protected under section 6(f) of the Land and Water Conservation Fund Act.

The Flathead National Forest and Woods Bay Fishing Access Site are two additional recreational sites located in the area. The Woods Bay Fishing Access site is 4.7 hectares (11.6 acres). It is open year-round (day-use only). A boat ramp is located approximately 1.1 km (0.66 mi) west of MT-35 at RP 27 on the shore of Flathead Lake.

The Flathead National Forest boundary is located to the east of MT-35, and comes within .89 km (0.55 mi) of the highway at RP 27.0. The National Forest provides a wide array of recreational opportunities, including hiking, camping and fishing.

3.7.2 *Parks & Recreation Impacts*

3.7.2.1 No-Action Alternative. This alternative would have no direct effect on recreational resources in the study area. However, as congestion increases, access to these resources would become increasingly difficult.

3.7.2.2 Preferred Alternative. This alternative would not have any negative impacts to Wayfarers State Park or the Bigfork Fishing Access Site. The Woods Bay Fishing Access Site and Flathead National Forest would not be impacted because their distance from the highway. The Preferred Alternative would have a positive impact to these recreational areas by improving access and safety conditions and by improving local and regional mobility

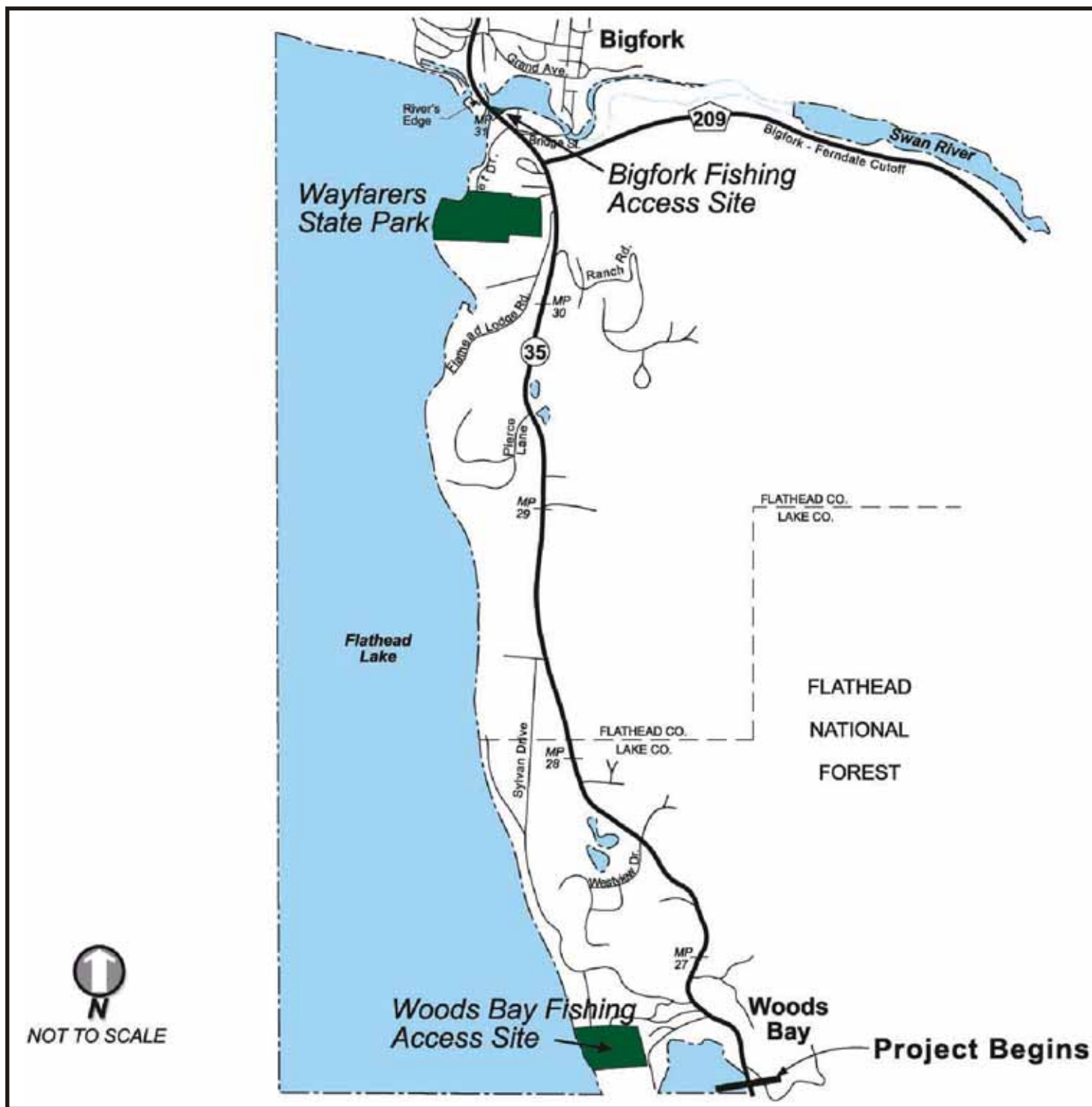
3.7.3 *Mitigation*

The Preferred Alternative will not encroach on the parcel containing the Bigfork Fishing Access Site. Design plans include retaining walls within the highway right-of-way to protect and avoid the site.

The Preferred Alternative will avoid Wayfarers State Park through a design that does not require use of any of the park parcels alongside the highway right-of-way.



Figure 3-7 Parks & Recreation





3.8 Section 6(f) Evaluation

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act and 36 CFR Part 59 assures that an area funded with LWCF assistance will be maintained in public recreation use unless the National Park Service (NPS) approves substitution of property of reasonably equivalent usefulness and location and of at least equal fair market value. The NPS requires:

- ▶ All practical alternatives to the proposed conversion are evaluated.
- ▶ Fair market value of the property to be converted is established and the substitution property is at least of equal market value.
- ▶ The replacement property must be reasonably equivalent usefulness and location as that being converted.
- ▶ Wherever partial property is converted, the impacts from the converted portion on the remainder shall be considered.
- ▶ The proposed conversion and substitution are in accord with Statewide Comprehensive Outdoor Recreation Plans.

3.8.1 Section 6(f) Properties

Two Section 6(f) properties are located in the study area, one is adjacent to the Preferred Alternative.

The Woods Bay Fishing Access Site is a 4.7 hectare (11.6 acres) parcel located on the shore of Flathead Lake, approximately 1 km (.67 mi) west of RP 27.0 on MT-35. The site is a year-round (day-use only) facility with handicap accesses. Fisherman and boaters use the boat ramp to load boats onto Flathead Lake.

The Bigfork Boat Ramp and Fishing Access Site is a .66 hectare (1.64 acre) parcel located alongside MT-35, at the southeastern corner of the Swan River Bridge. The site is an all-season, day-use only facility with handicap accesses. The boat ramp is used by fisherman and boaters to load boats onto the river and Flathead Lake. This Section 6(f) property is located adjacent to the alignment for the Preferred Alternative.

3.8.2 Section 6(f) Impacts

3.8.2.1 No-Action Alternative. This alternative would have no impact on either the Bigfork or the Woods Bay Fishing Access Sites.

3.8.2.2 Preferred Alternative. This alternative would have no impact on the Bigfork Fishing Access Site and Boat Ramp. The design for the highway in this location calls for retaining walls and alignments that do not require the use of any of the .66 hectare (1.64 acres). The Woods Bay Fishing Access Site would not be impacted by the Preferred Alternative as the property boundaries are far from any areas which would be impacted by the highway project.

3.8.3 Mitigation

No mitigation is required as the Preferred Alternative does not affect any Section 6(f) properties.



3.9 Air Quality

3.9.1 Affected Environment

The Bigfork North & South study area is located in an “unclassifiable” attainment area of Montana for particulate matter that is ten microns or less in size (PM₁₀) and carbon monoxide (CO). The classification exempts the area from the conformity requirements set forth in the 1990 Clean Air Act Amendments.

3.9.2 Air Quality Impacts

3.9.2.1 No-Action Alternative. This alternative would result in increased CO emissions as congestion increases over time.

3.9.2.2 Preferred Alternative. This alternative would ultimately result in decreased CO emissions as a result of the climbing and turn lanes, which would decrease congestion. Some increase in PM₁₀ emissions would likely occur, resulting from the larger road surface and sanding used for icy conditions in the winter. The Preferred Alternative would result in short-term increases in air pollution from construction-related traffic and in particulate emissions from ground disturbances.

3.9.3 Mitigation

The contractor will implement MDT’s Best Management Practices to minimize particulate or dust emissions during construction.

3.10 Noise

A detailed traffic noise analysis was conducted for the Bigfork North & South project. The approach to this noise analysis adheres to the requirements of MDT’s Traffic Noise Analysis and Abatement Policy and Procedure Manual (June 2001) and FHWA’s *Procedures for Abatement of Highway Traffic Noise and Construction Noise* (23 CFR, Part 772).

3.10.1 Methodology

According to FHWA and MDT, the definition of a Type I project includes improvements that physically alter existing highways/roadways, including changes to horizontal and vertical alignment. The proposed improvements along MT-35 fall within this definition. The primary tasks which were completed for this Type I Noise Analysis are listed below.

- ▶ MDT’s preliminary screening procedure;
- ▶ An inventory of land use activities, including existing, programmed and planned;
- ▶ Existing noise levels were determined;
- ▶ The noise prediction model was calibrated;
- ▶ The noise model was run for existing and future conditions;
- ▶ Traffic noise impacts were determined;
- ▶ Noise abatement measures were considered for feasibility and reasonableness; and
- ▶ Recommendations were formulated and the documentation was prepared.

3.10.2 Noise Abatement Criteria & Impact Determination

FHWA has defined criteria by which to determine noise impact from traffic sources for various land uses. Land uses with similar sensitivity to noise are combined within specific activity categories. Each activity category is assigned a noise level standard. The Noise Abatement Criteria (NAC) is provided in **Table 3-4**. The noise values reflected in this table are hourly L_{eq} . In general terms, the hourly L_{eq} represents the mean noise level experienced during a peak traffic hour.



Table 3-4 Noise Abatement Criteria (NAC) [Hourly A-Weighted Decibels (dBA)]		
Category	L _{eq} -dBA (Hourly)	Description of Activity Category
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need; where the preservation of these qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	-----	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

FHWA's definition of noise impact includes two scenarios: 1) When existing or design year noise levels "approach" or "exceed" the NAC for a given activity category; or 2) When design year noise levels "substantially exceed" existing levels. FHWA has allowed state transportation agencies to develop their own definition of "approach" and "substantially exceed" within this context. The following information provides MDT's definition of these terms.

- Approach – Design year noise levels are predicted to be one decibel below the levels shown for each land use activity category.
- Substantially Exceed – Design year noise levels are predicted to increase 13 decibels above existing levels.

MDT requires that noise mitigation be considered when noise impacts are identified. Consideration of noise mitigation is discussed later in this section. According to MDT, noise abatement is not normally considered for areas with commercial land use (Activity Category C). This policy is applied to areas that are dominated by commercial land use and areas where commercial activities are mixed with other land uses.

3.10.3 Preliminary Screening Procedure

A determination was made early in this environmental process that a detailed noise analysis would be required for the Bigfork North & South improvement project. The primary reasons for this determination are summarized below.

- The proposed action, which includes horizontal and vertical alignment shifts, is a Type I noise project.
- Existing noise levels at certain locations within the study area approach or exceed the NAC.
- Current and projected traffic volumes exceed MDT's threshold (ADT<300).

3.10.4 Affected Environment

3.10.4.1 Land Uses Within the Corridor

The majority of the study area is coniferous forest with patches of open grasslands in primarily mountainous terrain. A limited number of low-density residential developments are scattered throughout the corridor. Commercial areas are concentrated for the most part in the communities of Bigfork and Woods Bay and are primarily restaurant, retail, and lodging. Some banking, real estate



offices and general office space establishments are also established. Single-family structures make up the primary residential uses of the corridor, however, some multi-family residential developments are found within the corridor. Small sections of agricultural production are located mostly on the northern half of the corridor.

Coordination was conducted with Flathead County and Lake County regarding planned or programmed development within the study area. At this time, there are no specific developments that are planned or programmed for parcels along MT-35 within the study area.

3.10.4.2 Existing Noise Levels

Existing noise measurements were taken at five locations along MT-35 to represent the residential and commercial receptors within the study area. These locations are described in **Table 3-5**. The collection of this information adhered to MDT's guidance on measuring traffic noise.

Noise measurements were collected during August 2001. August represents the peak of the tourist season and the highest traffic volumes for the Bigfork area. In order to accommodate for the difference in noise levels from commuter traffic and recreational traffic, noise measurements were collected during both weekend and weekday travel periods. The collection of noise measurements was conducted during the peak travel periods in order to capture "worst-case" vehicular noise conditions. Weekday measurements were collected during either the a.m. or p.m. peak travel period, while weekend measurements were collected during the early afternoon.

Noise measurement results are provided in **Table 3-5**. The primary source of ambient noise observed in the field was vehicular traffic, including automobiles, trucks and recreational vehicles. The weekend measurements ranged from 50.1 decibels to 67.1 decibels, while the weekday measurements ranged from 54.6 decibels to 69.8 decibels. The existing noise levels at the receptors are all below the NAC of 67 decibels, except for Receptor 5. The primary reason for the noise level recorded at Receptor 5 is the location of the reading, taken at the property line within 3 m (10 ft) of the edge of pavement (due to limited property access). The residence itself is set back approximately 9 m (30 ft) from the roadway and would therefore receive lower noise levels. As shown in the table above, the weekday noise levels were generally 2 to 5 decibels higher than the weekend noise levels. Noise levels were monitored at Receptor 1 only on a weekday. Weekend noise level would likely be less than the weekday level, given the consistent relationship with the measurements at the other four locations.

Table 3-5 Noise Monitoring Results [A-Weighted Decibels (dBA)]			
Receptor	Description/Location	Monitored Noise Level (L_{eq} - dBA)	
		Weekend	Weekday
1	Residence of Rivers End Road	---	58.6
2	Marina Cay Resort	55.6	57.9
3	Residence: 90 Sunset Lane	50.1	54.6
4	Residence: 193 Bay Drive	56.8	58.6
5	Residence: 26419 State Highway 35	67.1	69.8



3.10.5 Model Calibration

A calibration analysis was completed to determine if the noise model could accurately calculate conditions within the corridor. The FHWA Traffic Noise Model Version 1.1 was the analytical tool utilized for this project. The noise model was run to simulate the conditions that were present during the collection of field measurements, including receptor locations and traffic on area roadways. The results of the calibration analysis are provided in **Table 3-6**. This table provides measured and modeled results for the five locations within the corridor.

Table 3-6 Model Calibration Results [A-Weighted Decibels (dBA)]				
Receptor	Description/Location	Measured	Noise Level (L_{eq} - dBA) Modeled	Difference
1	Residence of Rivers End Road	58.6	58.2	-0.04
2	Marina Cay Resort	57.9	56.2	-1.7
3	Residence: 90 Sunset Lane	54.6	56.9	2.3
4	Residence: 193 Bay Drive	58.6	56.7	-1.9
5	Residence: 26419 State Highway 35	69.8	71.5	1.7

The results of the calibration analysis indicate that the differences between measured and modeled data meet MDT's requirements at four locations. MDT guidance requires that measured and modeled results be within 2.0 decibels. The modeled noise level at Receptor 3 was 2.3 decibels higher than the measured noise level. Based on further review of this area, it appears that the model may not be accurately capturing the characteristics that are present around this location. Adjustments were made to modeling inputs in this area for the assessment of future scenarios.

3.10.6 Noise Impacts

Noise impacts were determined by forecasting existing and year 2024 noise levels for the corridor. Based on the sporadic development patterns within the study area, the formal modeling effort focused on the communities of Bigfork and Woods Bay. The determination of impacts between the two communities and north of Bigfork was based on a contour analysis that calculated approximate noise levels at various distances from MT-35. The No-Action 2024 scenario was not modeled as part of this effort. The reason for this modeling exclusion was that the No-Action 2024 and Preferred Alternative 2024 scenarios are virtually the same condition with regard to noise. The differences in projected traffic volumes for the two scenarios are minimal and the changes to the roadway alignment (vertical and horizontal) occur in areas where noise sensitive receptors are not present. The traffic study completed for the project provided information related to vehicular operations, including volumes, speed, and fleet mix.

The results from the model runs for the Woods Bay and Bigfork areas are provided in **Tables 3-7** and **3-8**, respectively. Each of these tables provides receptor identification, existing conditions (1999) model run results, Preferred Alternative 2024 model run results, and the NAC that applies to that particular land use. **Figure 3-8** provides a map of receptor locations in Woods Bay, while **Figure 3-9** illustrates receptor locations in Bigfork. These receptors were selected to represent the neighborhoods and clusters of development along MT-35. This group of receptors is not a complete inventory of residential and commercial structures along MT-35.

The year 2024 noise levels projected for the Preferred Alternative in Bigfork range from a low of 53.9 decibels to a high of 68.9 decibels. The noise levels projected for Woods Bay for the Preferred Alternative (2024) scenario range from a low of 61.4 decibels to a high of 76.6 decibels. The higher noise levels in Woods Bay are primarily attributable to more extreme grades present along this portion MT-35 and the existing reduced setbacks between the roadway and structures in this community.



Table 3-7
Existing & Future Noise Levels
Near Woods Bay (Peak)

Noise Receptor ID	Noise Monitoring Location	Existing Conditions Year 1999 Modeled (dBA - L _{eq})	Build Conditions Year 2024 (dBA - L _{eq})	Applicable FHWA NAC (dBA - L _{eq})	Year 2024 Impact (Yes or No)
W1	West of MT-35	62.6	68.2	66.0	Yes
W2	West of MT-35	61.6	67.4	66.0	Yes
W3	West of MT-35	62.5	67.1	66.0	Yes
W4	West of MT-35	66.6	68.4	71.0	No
W5	West of MT-35	67.2	67.2	66.0	Yes
W6	West of MT-35	59.6	63.2	66.0	No
W7	West of MT-35	68.2	71.9	66.0	Yes
W8	West of MT-35	57.7	61.4	66.0	No
W9	West of MT-35	60.5	63.9	66.0	No
W10	West of MT-35	68.0	72.1	66.0	Yes
W11	West of MT-35	57.5	61.4	66.0	No
W12	West of MT-35	65.7	68.6	66.0	Yes
W13	West of MT-35	66.1	69.7	66.0	Yes
W14	West of MT-35	69.0	71.7	66.0	Yes
W15	West of MT-35	69.7	73.3	66.0	Yes
W16	West of MT-35	70.2	74.1	71.0	Yes
E1	East of MT-35	64.6	69.6	66.0	Yes
E2	East of MT-35	64.2	70.5	66.0	Yes
E3	East of MT-35	64.1	70.1	66.0	Yes
E4	East of MT-35	70.9	74.9	66.0	Yes
E5	East of MT-35	65.9	69.5	66.0	Yes
E6	East of MT-35	70.4	75.0	66.0	Yes
E7	East of MT-35	59.6	64.5	66.0	No
E8	East of MT-35	70.1	74.8	66.0	Yes
E9	East of MT-35	67.7	71.4	66.0	Yes
E10	East of MT-35	63.0	67.8	66.0	Yes
E11	East of MT-35	71.9	76.6	71.0	Yes



Figure 3-8 Noise Receptor Sites in Woods Bay

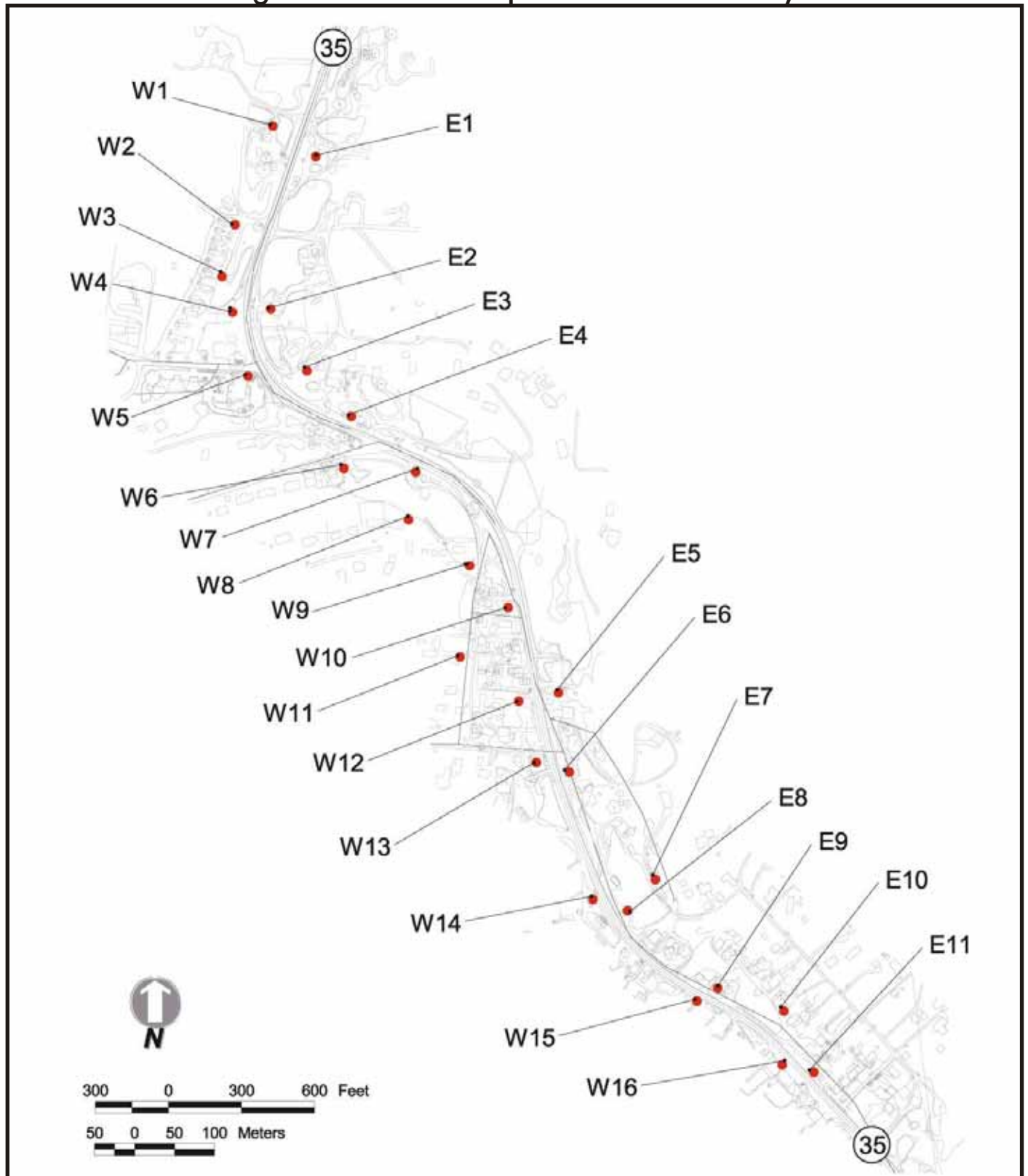


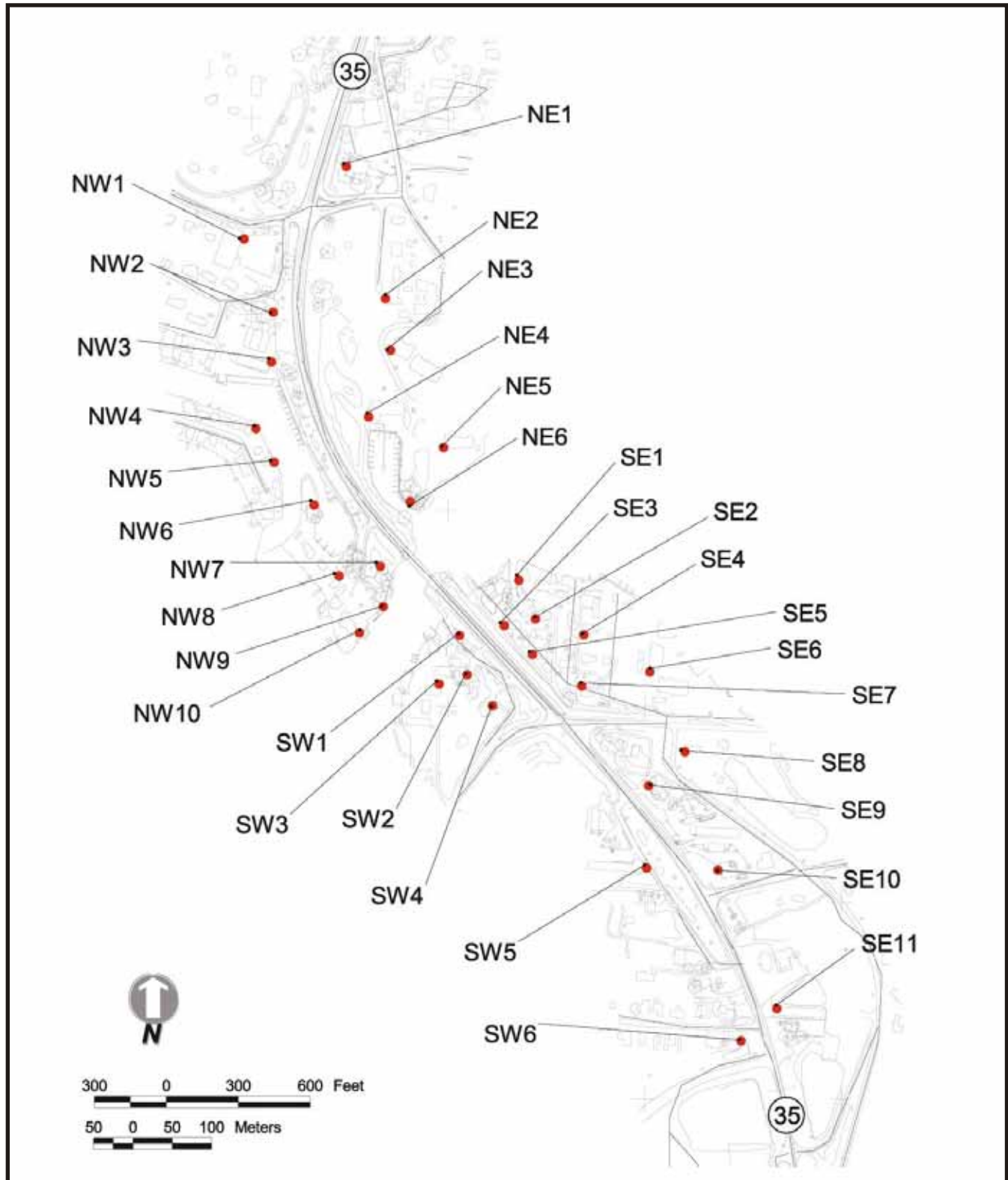


Table 3-8
Existing & Future Noise Levels
Near Bigfork (Peak)

Noise Receptor ID	Noise Monitoring Location	Existing Conditions Year 1999 Modeled (dBA - L _{eq})	Build Conditions Year 2024 (dBA - L _{eq})	Applicable FHWA NAC (dBA - L _{eq})	Year 2024 Impact (Yes or No)
NW 1	Northwest Quadrant	59.2	61.6	71.0	No
NW 2	Northwest Quadrant	56.7	56.9	71.0	No
NW 3	Northwest Quadrant	56.2	55.3	71.0	No
NW 4	Northwest Quadrant	58.8	59.7	66.0	No
NW 5	Northwest Quadrant	58.9	60.7	66.0	No
NW 6	Northwest Quadrant	60.5	62.6	66.0	No
NW 7	Northwest Quadrant	62.8	65.3	66.0	No
NW 8	Northwest Quadrant	59.4	62.2	66.0	No
NW 9	Northwest Quadrant	60.5	63.2	66.0	No
NW 10	Northwest Quadrant	58.1	60.8	66.0	No
NE 1	Northeast Quadrant	64.9	68.1	71.0	No
NE 2	Northeast Quadrant	56.2	59.1	66.0	No
NE 3	Northeast Quadrant	58.6	60.2	66.0	No
NE 4	Northeast Quadrant	60.8	64.3	71.0	No
NE 5	Northeast Quadrant	57.8	60.7	66.0	No
NE 6	Northeast Quadrant	61.8	64.8	66.0	No
SW 1	Southwest Quadrant	63.7	65.9	66.0	No
SW 2	Southwest Quadrant	61.8	64.2	66.0	No
SW 3	Southwest Quadrant	59.3	61.9	66.0	No
SW 4	Southwest Quadrant	61.1	63.5	66.0	No
SW 5	Southwest Quadrant	66.5	69.1	71.0	No
SW 6	Southwest Quadrant	64.8	67.2	66.0	Yes
SE 1	Southeast Quadrant	59.8	62.3	66.0	No
SE 2	Southeast Quadrant	60.3	63.1	66.0	No
SE 3	Southeast Quadrant	62.2	65.1	66.0	No
SE 4	Southeast Quadrant	57.5	60.7	66.0	No
SE 5	Southeast Quadrant	60.1	63.1	66.0	No
SE 6	Southeast Quadrant	54.8	57.6	66.0	No
SE 7	Southeast Quadrant	59.8	61.8	66.0	No
SE 8	Southeast Quadrant	56.1	58.1	66.0	No
SE 9	Southeast Quadrant	65.8	65.8	71.0	No
SE 10	Southeast Quadrant	64.4	64.4	71.0	No
SE 11	Southeast Quadrant	66.5	68.9	71.0	No



Figure 3-9 Noise Receptor Sites in Bigfork





3.10.7 Contour Analysis

Detailed noise modeling was not conducted for those portions of the study area outside of Bigfork and Woods Bay. Given the low-density development that exists along these portions MT-35, a contour analysis is the most efficient method for determining noise impacts. Another primary reason for this approach is that traffic volumes stay fairly constant along MT-35 between the two communities and to the north of Bigfork.

A contour analysis involves running the noise model for a few locations along the targeted stretch of roadway for receptors at varying distances from the edge of the roadway. The results provide a general pattern that indicates the distance from the roadway where 66 decibels occurs (MDT's noise impact criteria for residences). These contour line distances can then be compared to a land use map for the corridor to determine if impacts are projected for any structures within those portions of the corridor.

The results of the contour analysis indicated that the 66 decibel contour line is approximately 30 m (100 ft) from edge of roadway between Bigfork and Woods Bay, while north of Bigfork the same contour line is located approximately 35 m (115 ft) from edge of roadway.

3.10.8 Noise Impact Summary

In the Bigfork area, only one location (Receptor SW6) was projected to receive noise impacts with the Preferred Alternative in 2024. This receptor is a residence located along the west side of MT-35 and south of SH-209 alignment. The noise level projected for this area is 67.2 decibels. The existing conditions noise level modeled for this location was 64.8 decibels. The reason for this isolated impact in Bigfork appears to be the higher vehicular speeds that are present along MT-35, south of SH-209.

Several noise impacts were projected for the Woods Bay area with the Preferred Alternative in 2024. These impacts are projected to occur at residences and commercial properties along both sides of MT-35. According to the existing conditions modeling results, many of these locations are already experiencing noise levels that approach or exceed the NAC for residential and commercial developments. As noted previously, the noise levels in this area are primarily attributable to the grades along this portion of MT-35 and the reduced setbacks between the roadway and structures in Woods Bay.

The results of the noise contour analysis indicated that seven residences between Woods Bay and Bigfork would be impacted. While the Preferred Alternative creates certain noise impacts, it should be noted that the No-Action Alternative creates similar levels of noise impact.

3.10.9 Mitigation

MDT requires that mitigation be considered when noise impacts have been identified. The two main elements of noise mitigation consideration are feasibility and reasonableness. The assessment of feasibility focuses on issues associated with design, construction and maintenance of noise mitigation. Reasonableness is a subjective evaluation that addresses decibel reduction, cost/benefit of the investment, and community values. This process is included in a noise analysis to make sure that mitigation:

- 1) Can be constructed,
- 2) Will be effective at reducing noise,
- 3) Will not create any safety hazards,
- 4) Is acceptable to the community, and
- 5) Is compatible with the environment.



As described above, several areas within the study area are projected to experience noise impacts with the Preferred Alternative in 2024. These areas of impact include locations in Bigfork, Woods Bay and other portions of the corridor. A cursory-level assessment of feasibility and reasonableness was completed to consider mitigation for these locations. Based on this analysis, it appears that sound walls are technically feasible from an engineering and construction perspective for most of the impacted locations. It also appears that sound walls would reduce noise levels by at least 6 decibels for most impacted locations. However, there are four criteria within the reasonableness criteria that suggest sound walls should not be provided along MT-35. The criteria are:

- ▶ Corridor Compatibility – The implementation of sound walls would not be compatible with the rural and scenic nature of the study area. Sound walls are a design treatment that is more compatible with an urban or suburban setting.
- ▶ Community Values – The consistent message from the public regarding this project has been to maintain the character of the MT-35 Corridor. This value was a leading theme that emerged during the development of project goals and objectives.
- ▶ Cost/Benefit – Although detailed cost calculations were not developed, a cursory-level analysis of cost indicated that MDT's Cost Effective Index of \$4,200 would not be achievable at most of the impacted locations in the corridor.
- ▶ Commercial Properties – Commercial properties are impacted within the community of Woods Bay. As noted previously in this section, MDT's current policy is to not provide mitigation for commercial developments. The primary reason behind this policy is that commercial properties want to maintain their visibility from the adjacent highway/roadway.

During the public involvement process for this project, members of the community suggested two non-traditional noise mitigation techniques. These additional mitigation suggestions were the use of asphalt paving and truck restrictions. The theory behind paving materials is that asphalt produces less tire noise than concrete surfaces. This paving issue is currently being researched in various locations around the United States, which have not yet produced any conclusive findings. The actual pavement method used will be decided during the final design phase of the project. The comments regarding truck travel included both the restriction of trucks on MT-35 and banning the use of JAKE (engine compression) brakes along portions of MT-35. Restricting trucks from MT-35 is not an option because the facility is a State Route. The creation of JAKE brake restriction zones is required by law to originate through a local government request, thus MDT does not have direct control over the creation of this type of ordinance.

Based on the information described in this section, noise mitigation is not recommended at any location within the study area.



3.11 Water Resources/Quality

3.11.1 Affected Environment

3.11.1.1 Water Resources – The four Montana water basins: Upper Missouri, Lower Missouri, Yellowstone, and Columbia are subdivided into 16 sub-major basins. These are further split into 99 watersheds in the state. The Bigfork Study Area falls within the Columbia River Basin and Flathead sub-major basin. The Flathead basin, located in northwestern Montana and southeastern British Columbia, covers 22,240 km² (8,587 mi² [2,224,023 hectares or 5,495,658 acres]). The Flathead River's three forks: North, Middle, and South, supply approximately 80% of the water carried within the basin. Other rivers in the basin include the Swan, Whitefish and Stillwater. Elevations range from 3,091 m (10,142 ft) in Glacier National Park to 882 m (2,893 ft) at Flathead Lake, the basin's major catchment. Below the outlet of Flathead Lake, the lower Flathead River empties into the Clark Fork River. The two watersheds of the Flathead basin, which are located within the Bigfork Study Area, are the Flathead Lake and Swan River (large upstream tributary) as shown in **Figure 3-10**. No other small streams or tributaries were identified within the study area using 1994 Bigfork Montana USGS mapping.

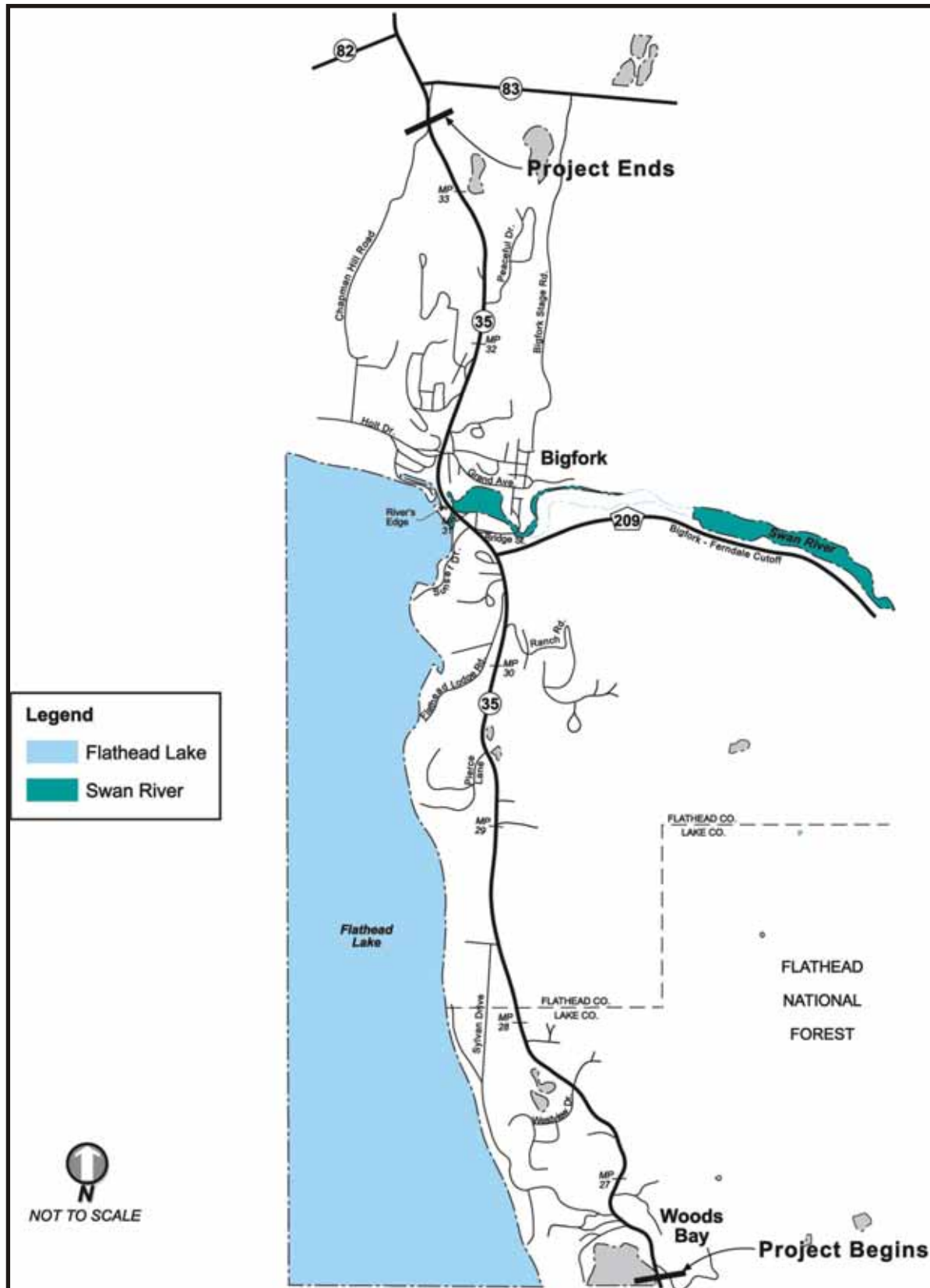
3.11.1.2 Water Quality – The US EPA regulations require all states to prepare a 303(d) list every two years based on Federal Clean Water Act requirements. The goal of compiling this list is to identify impaired and threatened lakes, rivers and streams throughout the state. An impaired body of water is defined as “not fully supporting one or more beneficial uses”.

The Montana Department of Environmental Quality (MDEQ) Draft Year 2000 Montana 303(d) List includes Flathead Lake as an impaired body of water. The probable causes of impairment are listed as “nutrients, siltation, organic enrichment/low dissolved oxygen and algal growth/chlorophyll A.” The probable sources are listed as “municipal point sources, silviculture (a branch of forestry dealing with the development and care of forests), urban runoff/storm sewers, upstream impoundment, and flow regulation/modification of atmospheric deposition”. Other bodies of water listed as impaired within the Flathead Lake and Swan River watersheds are outside of the project study area. Downstream of these two watersheds is the Lower Flathead watershed. There are no bodies of water in this watershed that have been assessed as threatened or impaired.

According to the Flathead Basin Commission Biennial Report 1997-1998, Flathead Lake was placed on the 303(d) list in 1994. In response to the designation of Flathead Lake as an impaired body of water, the Flathead Basin Commission (the Commission), MDNRC, MDEQ, and the Confederate Salish and Kootenai Tribes collaborated on long-term watershed planning in the Flathead Basin. With the help of an EPA grant, the Commission began the process of working with citizens within the basin and its agency partners to accomplish nutrient reduction for Flathead Lake. The ultimate goal is to have Flathead Lake removed from the 303(d) list. The Biennial Report states “although point source pollution (untreated pollution from large industrial sites or municipal waste water systems) is not currently a problem in the Flathead Basin, non-point source pollution is a significant concern. The problem is exacerbated by a pattern of development where the greatest impacts have been on rural areas typically not served by community waste water treatment systems.” Roadway runoff can be one contributing factor of non-point source pollution, however, throughout the study area the existing MT-35 roadway averages approximately 0.4 km (0.25 mi) from Flathead Lake. Due to this existing natural buffer between the roadway and lake, roadway runoff is a major contributor to non-point source pollution in Flathead Lake. Two exceptions are at the Swan River Bridge and Woods Bay. At these locations, the existing roadway and Flathead Lake do not have a natural buffer to filter runoff. These areas are sensitive to water quality issues.



Figure 3-10 Water Resources





3.11.1.3 Wild & Scenic Rivers – The Swan River is the only river located within the study area. This section of the river is neither designated as, nor proposed for inclusion in, the National System of Wild and Scenic Rivers (NSWSR) published by the US Department of the Interior/US Department of Agriculture.

Two small streams, Hunger Creek and Mauzey Creek, and the Flathead River are located near the project area, but are not designated, nor proposed for the NSWSR.

The Preferred Alternative would have no impact on wild and scenic rivers as the result of it's construction.

3.11.2 *Water Resources & Water Quality Impacts*

3.11.2.1 No-Action Alternative. This alternative will have neither short-term impacts on existing water quality conditions, nor an increase in surface runoff since there will not be additional paved surface area on the existing road. Long-term impacts to water quality will occur with the No-Action Alternative, especially at the Swan River Bridge and in Woods Bay, due to increasing congestion that will eventually result in larger quantities of runoff contaminants.

3.11.2.2 Preferred Alternative. A possible short-term impact of the Preferred Alternative is an increase in sediment loading into streams during construction at specific locations. A short-term change in the rate of erosion from land surfaces may occur due to the temporary removal of vegetation, but impacts of this type would occur only in the event of a large rainstorm or snow melt.

Highway water runoff pollutants including heavy metals, nutrients, sediments, oil, grease, deicing salts, and litter could adversely impact the water quality near roadways where the ADT is over 30,000. The Preferred Alternative would result in greater amounts of impervious (paved) roadway surface area that would increase the volume of storm runoff. However, anticipated ADT on MT-35 for the year 2020 is less than 10,000 VPD, so the concentrations of these pollutants are not expected to have adverse effects on water quality.

During the collaborative public involvement process, the community expressed a desire for roadside ditches to convey storm water instead of curb and gutter and storm sewer. To that end, the Preferred Alternative includes roadside ditches for drainage. Roadside ditches help to improve water quality as they provide natural filtration and sedimentation functions before the storm water reaches it's final water resource destination. Additionally, ditches do not concentrate flow, unlike curb and gutter and storm sewer.

The improved safety associated with the Preferred Alternative would decrease the likelihood of hazardous material spills occurring from collisions, which decrease water quality and adversely impact fishery resources.

3.11.3 *Mitigation*

Some of the acceptable mitigation measures include:

3.11.3.1 Long Term Mitigation

- ▶ A Stormwater Pollution Prevention Plan (SWPPP) would be submitted to the MDEQ Water Quality Division in compliance with their Montana Pollutant Discharge Elimination System Regulations (ARM 17.30.11, 12, 13) for the proposed project.
- ▶ As established in MDT's Erosion and Sediment Control Best Management Practices (BMP) Manual, BMPs would be included in the design of this plan. The objective is to minimize erosion of disturbed areas and control sedimentation during and following construction of the proposed project.



- ▶ Vegetated drainage will be used as swales to slow storm water runoff and allow for the settling of suspended solids and contaminants before discharging to surface waters.
- ▶ In accordance with 7-22-2152, and 60-2-208 MCA, MDT will re-establish permanent desirable vegetation along roadway right-of-way. MDT will develop a set of re-vegetation guidelines that must be followed by the contractor. These specifications will include: instructions on seeding methods, seeding dates, types and amounts of mulch and fertilizer, along with the seed mix components. Seed mixes are to include a variety of species to assure that vegetative cover rapidly stabilizes the areas disturbed by construction.

3.11.3.2 Short Term/Construction Mitigation

- ▶ Implement erosion control measures using BMPs, such as temporary and permanent seeding and mulching, within a reasonable time following disruption of the soil.
- ▶ Implement sedimentation control methods using MDT BMPs such as check dams, silt fences, and sedimentation basins along drainage routes and adjacent to water features.
- ▶ Use temporary and permanent retention ponds, as necessary, to optimize settling time for the sediment-laden runoff before entering a water feature.
- ▶ Use settling ponds for the drainage of the de-watering operations.
- ▶ Minimize vegetation disturbance and promptly re-vegetate areas of disturbance outside of the roadway prism.

3.12 Wetlands

3.12.1 *Affected Environment*

Field surveys and wetland delineation were conducted in August 2001, and rechecked in October 2002, in accordance with the COE 1987 Wetland Delineation Manual and Executive Order 11990. The total wetland area within the project corridor is 22.8 hectares (56.3 acres) (**Table 3-9**). Seven project Wetland Sites (WL Sites) are shown on **Figure 3-11a** and **Figure 3-11b** and may be classified under three categories. The wetlands were classified as either Category II, III, or IV based on MDT function/value assessment forms.

3.12.1.1 Small Marshy or Swampy Wetlands Sustained By Precipitation-Induced Groundwater.

Descriptive of WL Sites 2, 3, and 4: these areas have developed within small depressions located adjacent to the roadway. They are generally vegetated with grasses and various other plants typically found in a marshy environment. WL Site 3 includes a canopy dominated by red-osier dogwood and alder. In spite of their relatively small size, they nonetheless contribute to a broader cover mosaic that supports many forms of wildlife. The functional rating for these sites is Category III or IV (**Table 3-9**) primarily due to their small size, limited function/diversity, and their proximity to the highway.

3.12.1.2 Large Marshy or Swampy Wetlands Sustained By Precipitation & Groundwater.

WL Sites 1 & 5 share this description, making up the two largest sites within the project. Both areas receive enough water to retain some level of permanent overflow level. However, surface water flow from the surrounding drainage basin appears to be augmented by a high water table or groundwater seepage. The two areas differ in their composition. The functional rating for both sites is Category II (**Table 3-9**) in recognition of their size and diversity. These areas greatly benefit area wildlife.



Figure 3-11a Wetlands (South)

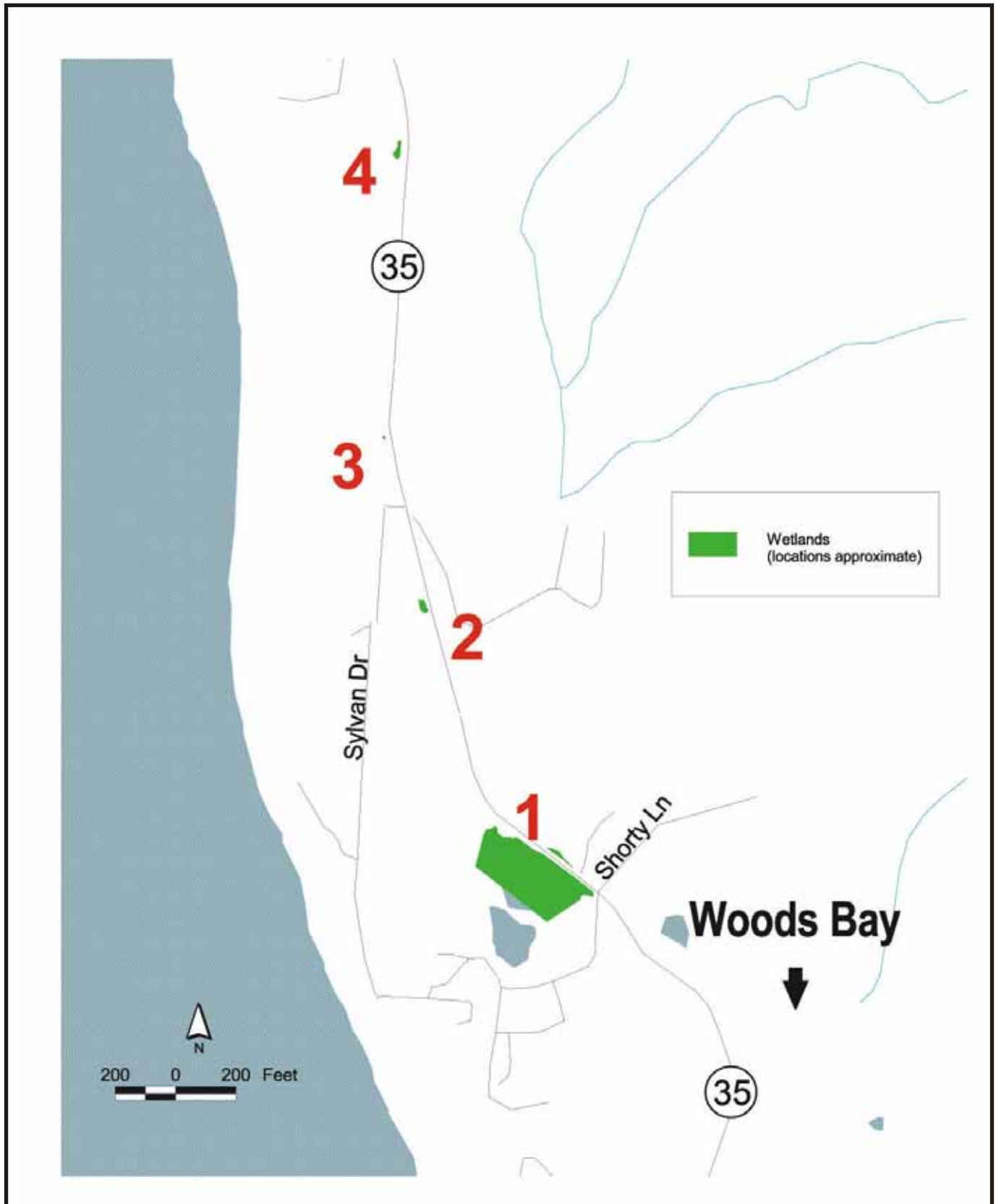
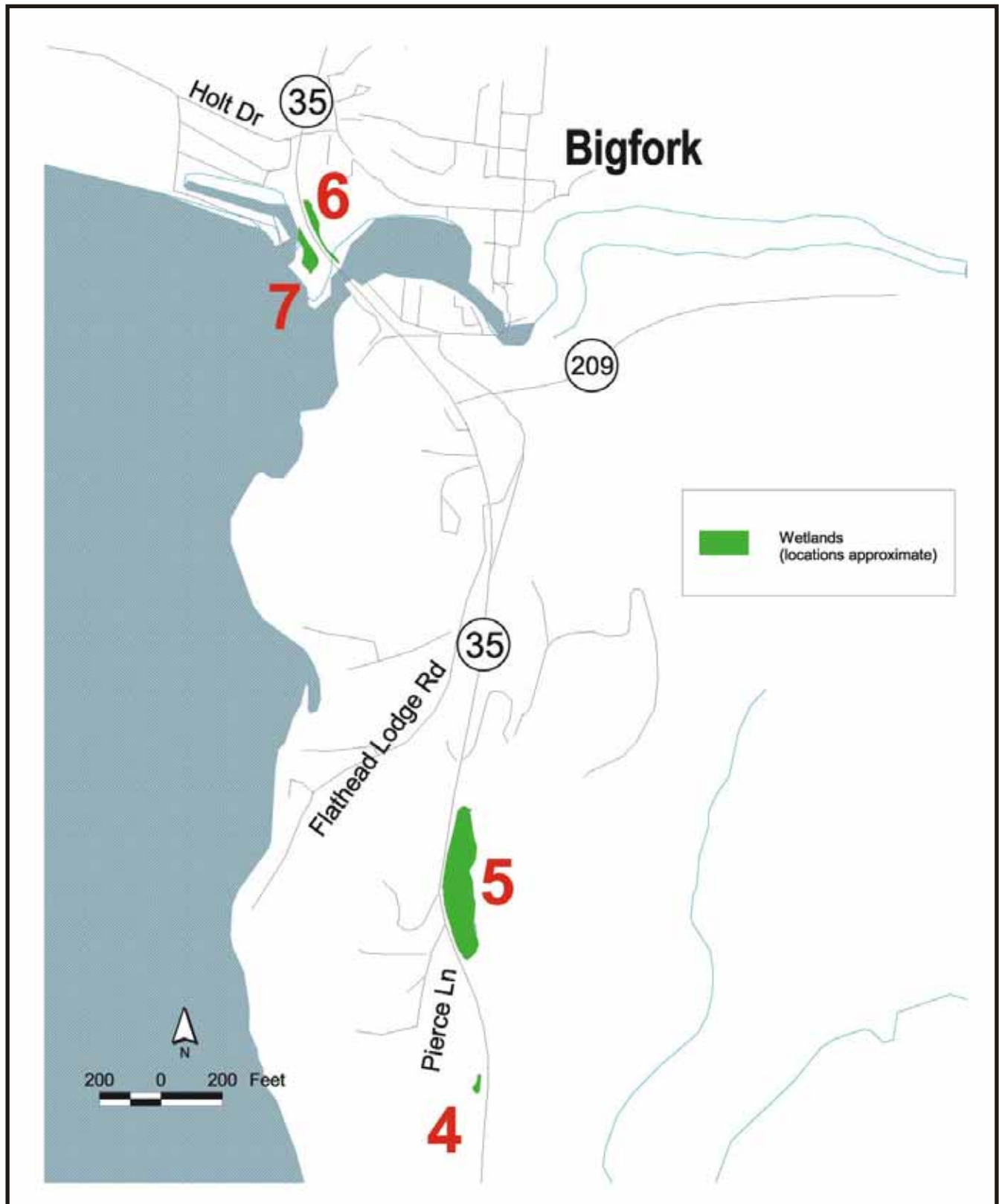




Figure 3-11b Wetlands (North)





3.12.1.3 Remnant bank-fringe wetlands occurring near the juncture of the Swan River & Flathead Lake.

Descriptive of WL Sites 6 and 7: these areas are dependent on the existing river/lake levels. Near WL Site 6, commercial development of a marina complex with its associated condominiums has likely impaired what was once a larger historic wetland area to where only small, sporadic portions remain today. Initial construction of the highway bridge also contributed to diminished wetland function at WL Sites 6 and 7. These factors contribute to a functional rating of Category III (**Table 3-9**).

Table 3-9			
Summary of Wetland Function/Value Ratings & Classifications			
Wetland Site No.	MDT Function/Value Assessment Class	Estimated Wetland Area, Hectares (Acres)	Type of Wetland
1	II	16.2 (40)	Emergent, Aquatic Bed
2	III	0.81 (2)	Emergent
3	IV	0.04 (0.1)	Scrub-Shrub
4	III	0.4 (1)	Emergent
5	II	4.9 (12)	Emergent, Aquatic Bed
6	III	0.4 (1)	Scrub-Shrub, Emergent
7	III	0.08 (0.2)	Aquatic Bed, Emergent
Total		22.8 (56.3)	

3.12.2 *Wetlands Impacts*

3.12.2.1 No-Action Alternative. This alternative would result in no impacts to wetlands.

3.12.2.2 Preferred Alternative. This alternative is estimated to permanently impact a total of 0.15 hectares (0.37 acres) (see **Table 3-10**) from Wetlands 1, 2, 5, and 6 due to proposed addition of shoulders and turn lanes. No permanent impacts are anticipated to Wetlands 3, 4, and 7. Additional temporary and indirect impacts may occur during construction. These impacts will be avoided or minimized based upon use of MDT's Best Management Practices.

Table 3-10			
Wetland Impacts by MDT Classification			
Wetland Site No.	MDT Overall Wetland Function & Value Rating	Impacted Area	
		Hectares	Acres
1	Class II	0.053	0.13
2	Class III	0.012	0.03
3	Class IV	0	0
4	Class III	0	0
5	Class II	0.04	0.1
6	Class III	0.045	0.11
7	Class III	0	0
Total		0.15	0.37



3.12.3 *Practicable Alternatives*

- ▶ WL Sites 1, 2, 5, and 6: These wetlands are within the construction area of the proposed highway alignment.
- ▶ All Wetlands: The No-Action Alternative would avoid fill in the wetlands; however, the No-Action Alternative does not meet purpose and need for the project.
- ▶ Creating small roadway bridges to avoid disturbing the wetland sites is not considered a practicable alternative due to its greater cost (approximately three times the cost of a section of fill) and increased safety hazards due to icy conditions during the winter.
- ▶ Due to the location of wetlands, it is not possible to entirely avoid wetland impacts. The design of the Preferred Alternative would, however, include all feasible measures to minimize wetland impacts.

3.12.4 *Mitigation*

The Preferred Alternative has been designed to minimize and/or avoid disturbance and impacts to wetlands. Wetland impacts along the corridor will be avoided or minimized by use of retaining walls and guardrail, change of highway alignment, and steepening of fill slopes; however, because some of the wetland sites are immediately adjacent to the existing roadway, complete avoidance is not possible. The actual areas of avoidance and minimization will be determined during the final design.

Implementing conservation measures during roadway design and construction would minimize the impact where wetland losses are unavoidable. Specific mitigation during construction to be considered includes:

- ▶ Minimize vegetation removal.
- ▶ Promptly re-vegetate all construction exposed wetland areas to MDT standards to reduce erosion and sedimentation.
- ▶ Flag or fence wetland areas during construction to avoid unnecessary disturbance.
- ▶ Provide bank stabilization and erosion control to meet standards defined by the MDT Erosion & Sediment Control BMP Manual.
- ▶ Assure contractor adherence to MDT's BMPs relating to water quality and the handling of fuels and other contaminants common to staging areas.

Prudent and feasible measures to mitigate, minimize, and/or avoid wetland losses associated with the project will be implemented in the design of the Preferred Alternative. The initial strategy will be the development of available on-site mitigation to compensate for unavoidable wetland losses. If on-site mitigation opportunities are unavailable for regulated wetland sites, losses will be mitigated at a MDT wetland reserve site.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands. The proposed action includes practical measures to minimize harm to wetlands which may result from such actions.



3.13 Wildlife, Fish & Vegetation

3.13.1 Wildlife

Wildlife diversity is high in the rugged Missions Range area with groups from large carnivores to small ground-dwelling mammals, reptiles and amphibians represented. Songbirds seasonally occupy forested cover along the lakefront and are prey for many larger species. Shorebirds and waterfowl are present in lakefront shorelines, mud flats, and marshes.

Birds of prey (raptors) within the study area are associated with diverse food sources including lakefront fisheries, waterfowl, boreal dwelling grouse, and smaller birds. Both bald and golden eagles are present as well as osprey, peregrine and prairie falcon, turkey vultures, goshawks, Cooper's and sharp-shinned hawks, American kestrels, and a variety of other smaller hawks. No raptor nests, except osprey, were located within or near the study area.

Larger, reclusive carnivores include grizzly and black bear, mountain lion, bobcat, and coyote. Additionally, Canada lynx and gray wolf are possibly in the area. However, they are more likely to occur in the rugged back country than along the highway corridor. Bears (primarily black bear), occasionally scavenge in area orchards, especially during the drier summer months. Ungulates include Rocky Mountain elk, moose, mountain goat, mule deer and white-tailed deer. White-tailed deer are common within the highway corridor.

3.13.2 Wildlife Impacts

3.13.2.1 No-Action Alternative. This alternative would have no new direct impacts on wildlife habitat because no vegetation clearing or land-disturbing activities would occur. Roadway noise and activity would continue to displace wildlife near the road. The barrier created by the existing roadway would continue to fragment wildlife habitat and affect wildlife movement across the road. Direct wildlife mortality, from collisions with motor vehicles, would continue and would likely increase as traffic volumes increase.

3.13.2.2 Preferred Alternative. Direct long-term impacts to wildlife habitat would occur from widening the road and from the loss of habitat. The zone of influence (the area in which wildlife potentially would be affected by various disturbances including noise and visual effects) extends beyond the edge of the existing road, and varies with topography, vegetation type, human activity and development.

Direct impacts to wildlife would occur from the increased habitat fragmentation associated with a wider road. A widened road may physically prevent wildlife traveling from suitable habitat on one side of the road to suitable habitat on the other side of the road. Additionally, the subdivision of wildlife populations into smaller isolated populations may reduce population viability.

Vehicle-related wildlife mortality along this portion of MT-35, although less than in the neighboring Swan River Valley, is an important factor in highway safety issues. During the last two years, MDT maintenance personnel removed from the right-of-way carcasses of 53 white-tailed deer and one elk. The carcasses were distributed throughout the highway corridor, suggesting that a single area is not a highly used wildlife crossing. Additionally, numbers of vehicle-injured wildlife dying outside the right-of-way may be as high as those dying within the right-of-way.

The Montana Highway Patrol investigated 11 vehicle vs. wildlife collisions, ten with white-tailed deer and one with an owl over the past ten years. As a result of vehicle vs. wildlife collisions, two people sustained minor injuries in separate accidents.



The mortality rates associated with MT-35 are influenced by vehicle speeds and sight distances. Sight distances are typically improved not only by the realignment of both horizontal and vertical curves, but through the development of clear zones that greatly affect an animal's willingness to cross unnatural terrain. For this project, and its ample diversity of wildlife, it is critical that clear zones be developed of modest width upon completion. This would still provide motorists opportunity to detect the more commonly occurring deer along the highway's edge without psychologically deterring the area's more reclusive species such as bears, wild cats, and mustelids from crossing. Open spaces created by multiple lanes and overly zealous clearing has proven to be actual barriers for many such species throughout the country.

Widening the clear zone may potentially have a positive impact by reducing wildlife mortality; this is due to increased sight distances for drivers to see and avoid wildlife. Widening the clear zone may also have a negative impact as it would contribute to habitat fragmentation.

3.13.3 Mitigation

To minimize impact to wildlife species using the lakefront area, all clearing and grubbing operations, including tree removal in riparian areas, will be restricted to the minimum area necessary to accommodate the planned reconstruction activities and improvements. This measure will help ensure that the Preferred Alternative does not unintentionally deter wildlife movement along the lakefront, while still affording improvement of the highway's existing site conditions. Prompt removal of road kill by the contractor during the construction period, and by MDT maintenance staff following construction will reduce risk to scavenging carnivores.

3.13.4 Rare and Sensitive Flora of Concern

3.13.4.1 Affected Environment

MT-35 crosses upland, forested slopes and skirts several ponds fringed by wetland communities. Most of the property along the route is under private ownership and has been modified and developed for residential and/or commercial purposes. Although native plant communities are present, most have been significantly modified as evidenced by logged slopes, roadside brush cutting, grading, placement of riprap, and weed abatement. In addition, landowners have landscaped around residences and businesses.

Prior to initiation of fieldwork, a review of the Montana Natural Heritage Program (MTNHP) plant species of special concern list was completed, which generated a target list of plant species that occur within or near the project area (MTNHP, 1999). **Table 3-11** presents a list of species that may occur in the area, their habitat characteristics and flowering and fruiting life cycle, as well as their MTNHP rankings.

There are three USFWS federally listed threatened plant species in Montana. Water howellia (*howellia aquatilis*), an annual plant known from pothole ponds in the Swan Valley, Ute ladies' tresses (*spiranthes diluvialis*), a perennial orchid known from alkaline wetlands in southwest Montana valleys, and Spalding's campion (*Silene spaldingii*), known from the Palouse prairie grasslands of northwest Montana. These federally listed species are considered for all project work.

3.13.4.2 Federally Listed Species

Water howellia and Spalding's campion are known from nearby locations in northwest Montana, but the habitat for these species and plant populations was not observed within the right-of-way. Suitable habitat, plant species associates, and plants of Ute ladies' tresses, a species known from southwest Montana valleys, was not observed within the corridor.



Table 3-11
Plant Species of Special Concern

Species	Common Name	USFWS Status	MTNHP Status	Key Community Characteristics	Flowering/Fruiting Life Cycle
<i>Bidens beckii</i>	Beck Water Marigold		G4/S2	Still or slow-moving water of lakes, rivers & sloughs in valleys (west)	Aug - Sept
<i>Botrychium monatnum</i>	Mountain Moonwort		G3/S3	Usually deep litter of springy, mature western red cedar forests, but also in riparian thickets, mesic meadows and grassy trail edges	July - Aug
<i>Carex Composita</i>	Bristly Sedge		G5/S1	Marshes in valleys (west)	July
<i>Carex Sychnocephala</i>	Many-headed Sedge		G4/S1	Moist soil of meadows along streams and ponds in valleys and on the plains	July - Aug
<i>Carex tinctoria</i>	Slender Sedge		G4-G5/SU	Meadows, open woods, sloughs and road sides	July - Aug
<i>Cypripedium fasciculatum</i>	Clustered Lady's Slipper		G4/S2	Dry to moist forest in the montane zone	June - Aug
<i>Cypripedium parviflorum</i>	Small Yellow Lady's Slipper		G5/S3	Fens, damp mossy woods, seepage areas and moist forest meadow ecotones in the valley to lower montane zones	May - June
<i>Eleocharis rostellata</i>	Beaked Spike rush		G5/S2	Wet, often alkaline soils, associated with warm springs or fens in the valley and foothill zones	July - Aug
<i>Erigeron eatonii ssp. Eatonii</i>	Eaton's Daisy	LT	G5/T5S1	Open areas in mountains and foothills	July - Aug
<i>Howellia aquatilis</i>	Water Howellia	P	G2/S2	Small vernal freshwater glacial ponds and oxbow sloughs in the valley zone	June - July
<i>Silene spaldingii</i>	Spalding's Campion	LT	G2/S1	Open grasslands with rough fescue or blue bunch wheat grass associations, occasionally with scattered conifers in deep soils	July - Aug
<i>Wolffia columbiana</i>	Columbia Watermeal		G5/S2	Fresh shallow water of ponds and sloughs in the valley zone	July - Aug

USFWS STATUS:

LT – Listed Threatened: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

P – Species for which a proposed rule has been published in the Federal Register to list the species as threatened.

MTNHP Heritage Status – For each level of distribution G=global and S=state, species are assigned a numeric rank ranging from 1 (critically imperiled) to 5 (demonstrably secure) with the exceptions below. This reflects the species' relative endangerment and is based primarily on the number of occurrences of that species globally or within the state. However, other information such as date of collection, degree of habitat threat, geographic distribution patterns and population size and trends is considered when assigning a rank.

1 – Critically imperiled because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction throughout its range.

2 – Imperiled because of rarity (6-20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range.

3 – Either very rare and local through its range, or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factor; in the range of 21 to 100 occurrences.

4 – Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

5 – Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

H – Historical, known only from records over 50 years ago; may be rediscovered.

Q – Taxonomic questions or problems involved, more information needed, appended to the global rank, e.g. G3Q

U – Possibly in peril in state, but status uncertain; more information needed.

T – Rank for sub-specific taxon (subspecies or variety); appended to the global rank; e.g. G4T3.



3.13.4.3 Plant Species of Special Concern

One plant species of special concern, the many-headed sedge (*Carex sychnocephala*), was identified during the field survey (*Bigfork Biological Resources Report*, available by contacting Carter & Burgess, Inc. at 801.355.1112). This species is located on private land and public right-of-way around a pond and wetland area on the west side of the roadway between RP 27.6 and RP 27.8, about 2.1 km (1.3 mi) north of the beginning of the project. The many-headed sedge is listed as “sensitive” in the states of Montana, Wisconsin, and Washington, where it is at the edge of its range of distribution. The population within the right-of-way is located between the roadbed and the edge of the pond. These plants occur in micro-topographic low areas with reed canarygrass (*Phalaris arundinacea*), water smartweed (*Polygonum amphibium*), and common groundsel (*Senecio vulgaris*), around the edge of a relatively large wetland. The wetland is located at the entrance to the Ridgewood Subdivision, on private land in Section 18, T 26N, R 19 W. A list of the plant species identified as occurring in the right-of-way during the field survey is included in the *Biological Resources Report*.

The many-headed sedge is relatively common in North America, and is known from Ontario to Alaska, south to Pennsylvania, Iowa, South Dakota, Colorado, Washington (Great Plains Flora Association, 1986), and Montana. Under the MTNHP ranking system, this species is apparently secure globally (assigned a rank of G4), although it may be quite rare in parts of its range.

In Montana, the many-headed sedge has been documented in six widely separated locations. In one, an historic representation in an 1891 collection, no specific population location information is given other than indications that the population occurred in “Great Falls”. The remaining plant populations have been collected more recently, and include Sheridan (1), Lincoln (1), Lake (1), and Glacier (2) counties (MTNHP, 1999). Due to the limited number of known populations of the many-headed sedge, it has been assigned a MTNHP ranking for the state of Montana of S1, (critically imperiled because of extreme rarity). Many-headed sedge is also listed as a “plant species of special concern” by the Heritage programs in Washington, where it is given a state rank of S1S2, and in Wisconsin where it has a state rank of S2.

3.13.5 Rare & Sensitive Flora Impacts

3.13.5.1 No-Action Alternative. There would be no impacts to Rare and Sensitive Flora Species as a result of the No-Action Alternative

3.13.5.2 Preferred Alternative. The proposed action will disturb areas that currently support cover of native plant populations as well as landscaped areas. Disturbing new ground may allow for an increase in noxious weeds and the introduction of new weeds. A number of state-listed noxious weeds are known in the area. These include spotted knapweed (*Centaurea maculosa*), Canada thistle (*Cirsium arvense*), common tansy (*Tanacetum vulgare*), and whitetop (*Cardaria draba*).

One population of many-headed sedge was found located within MT-35 right-of-way during the field survey. Any construction-related activities in the above-described area could have the effect of destroying individuals of the population.

3.13.6 Mitigation

The project has the possibility of damaging or destroying a small portion of the total many-headed sedge population in this area. Limiting construction through the wetland area and maintaining the current roadbed would minimize impacts to wetlands and the many-headed sedge population.

The following mitigative actions will be undertaken and made a part of the contract and roadway plan documents:

- Place appropriate erosion control devices to delineate construction limits and control erosion induced siltation from migrating outside the construction limits.



- ▶ Install the appropriate erosion control devices according to BMPs for erosion control and monitor the performance and condition of the device throughout the construction period to insure its effectiveness.
- ▶ Construct retaining walls to contain roadway fill materials. The retaining walls will be placed between MP 27.6 to MP 27.8 near the existing toes of slopes in order to minimize ROW take. This will also minimize impacts to the many-headed sedge.
- ▶ Keep all construction activity within the designated construction limits.
- ▶ Prior to construction, a qualified biologist will survey the construction area to inventory the number and location of any many-headed sedge plants. If deemed practical, the contractor will manage construction activities to avoid or limit impact to the plants.

3.13.7 Rare & Sensitive Fauna of Concern

3.13.7.1 Affected Environment

A Montana Natural Heritage Program (MNHP) inquiry dated March 6, 2000, revealed a number of both past-and-present species sightings within a 3.2 km (2 mi) radius of the project (**Table 3-12**). These sightings include Flathead pondsnails in the vicinities of Bigfork and Woods Bays, black terns near the community of Bigfork, and a more recently established peregrine falcon territory located northeast of the project. Frequently observed ospreys are present along the east lakefront, but no visible nesting territories were apparent immediately along the travel corridor. Common loons are infrequently seen along the lakefront and not expected to occur along the project route. A single northern leopard frog, a species considered extremely rare and vulnerable throughout this part of their range, was recently documented in the Yellow Bay area, south of the project. No northern leopard frogs were observed during intensive field surveys of the study area.

Table 3-12
Species of Special Concern, Which May Reside in the Bigfork North & South Project Area

Common Name	Species	MNHP Ranking(s)	Habitat in the Project Area	Known Distribution in the Project Area
Black Tern	<i>Chlidonias niger</i>	S3B, SZNG4	Larger bodies of water with associated open shorelines; may nest on floating vegetation	Most current is a 1965 record when 13 terns occupied a 2.02 hectare (5-acre) pond in the Bigfork area. Successfully nested at that location during that year.
Osprey	<i>Pandion peregrinus</i>	None Presently	Boreal habitats bordering lakes and rivers that provide a source of fish	Presence in general area, but not known in territories along highway corridor
Peregrine Falcon	<i>Falco peregrinus</i>	S1S2B, SG4	Craggy areas along the west slopes of the Mission Range	Once active territory located east of project along the Mission front
Northern Leopard Frog	<i>Rana pipiens</i>	S3S4, G5	Densely vegetated wetlands with standing water	No records from the project area, however, project falls within general distribution
Common Loon	<i>Gavia immer</i>	S2B, SZN, G5	Boreal-associated lakes throughout the region	Loon Lake, Flathead Lake, and possible others throughout the region
Flathead pondsnail	<i>Stagnicola elrodi</i>	S1, G1	Quieter waters of large oligotrophic lakes	1966 occurrences in both Bigfork and Woods Bay. However, nothing remotely close to the project area.



3.13.8 *Rare & Sensitive Fauna Impacts*

3.13.8.1 No-Action Alternative. There would be no impacts to Rare and Sensitive Species Fauna as a result of the No-Action Alternative.

3.13.8.2 Preferred Alternative. Preferred habitats of Flathead pondsnails, black tern, and peregrine falcon are well removed from the highway corridor. Since ospreys are one of the large raptors more tolerant of human activity around nest sites, the potential for project-related conflicts is low. Other species, particularly bats, songbirds, and raptors may also migrate or forage infrequently along this portion of lakefront. The scope of this project does not suggest either direct or indirect impacts to individuals of these groups other than their short-term displacement by construction noise.

3.13.9 *Aquatic Resources*

3.13.9.1 Aquatic Resources – Existing Conditions

The project area lies within the Columbia River Basin and Flathead sub-major basin. The Flathead sub-major basin includes Flathead Lake, the main stem of the Flathead River (upstream of Kerr Dam), and major tributaries including the Swan River, Whitefish River and Stillwater River drainages,. The North, Middle, and South Forks of the Flathead River and their major tributaries are also included in this sub-major basin (Deleray, et al., 1999). Kerr Dam is located at the southern end of Flathead Lake, approximately 6.9 km (4.3 mi) downstream of the natural lake outlet. Other dams in the basin include the Bigfork Dam, located on the Swan River approximately 1.9 km (1.2 mi) above Flathead Lake, and Hungry Horse Dam, located on the south fork of the Flathead River, approximately 8.5 km (5.3 mi) upstream from the confluence with the Flathead River.

The project crosses several creeks and the Swan River. The Swan River drains the Swan River Valley and Swan Lake and is a major tributary to Flathead Lake. Fish movement upstream from Flathead Lake is blocked by Bigfork Dam, which measures 3.7 m (12 ft) high and 91.4 m (300 ft) long, and is located upstream of Bigfork Village. The dam was built in 1902 for electrical power production. At the south end of the dam, a water intake structure diverts water from the reservoir to the turbines via a 1.6 km (1 mi) long conveyance. The project is operated as a run-of-the-river facility (the flow of water immediately downstream of the dam must be the same as the flow immediately upstream).

Common fish species found in the Swan River below Bigfork Dam include longnose sucker, largescale sucker, northern squawfish, peamouth, and rainbow trout (MRIS database). Other species listed as present include largemouth bass, mountain whitefish, pygmy whitefish, and redbelly dace. Those listed as uncommon or incidental include brook trout, kokanee, lake trout, lake whitefish, longnose dace, northern pike, westslope cutthroat trout, and yellow perch. Swan River below Bigfork Dam is managed as a trout stream by MDFWP. Ingress is limited; however, some fishing is allowed with restrictions.

3.13.10 *Aquatic Resources Impacts*

3.13.10.1 No-Action Alternative. There will be no impacts to aquatic resources as a result of the No-Action alternative.

3.13.10.2 Preferred Alternative. Impacts of the Preferred Alternative are addressed in the *Bigfork North & South Biological Resources Report* (available from Carter & Burgess at 801.355.1112) and are summarized in Section 3.15: Threatened and Endangered Species.

3.13.11 *Mitigation*

Mitigative measures for impacts to the aquatic resources, (bull trout in particular) are located in Section 3.15.3: Threatened and Endangered Species Mitigation.



3.14 Vegetation

3.14.1 Affected Environment

Virtually all of the vegetative communities located along the project route are associated with coniferous habitat. Conifers include Douglas and grand fir, western larch, Engelmann spruce, lodgepole and ponderosa pines. Deciduous trees including paper birch, black cottonwood, and quaking aspen also add to the dense canopy lining the route south of Bigfork. Varying levels of roadside logging and residential disturbance have largely defined the remaining mix of conifer and deciduous species. Wetlands are also a component of the general landscape and lend diversity to the single species coniferous habitats.

Under stories comprised of Serviceberry, Mountain Maple, Oceanspray, Black Hawthorn, Ninebark, Woods Rose, Common Snowberry, and Canada Buffaloberry exist throughout the study area. This composite of shrubs, saplings, and trees provides habitat along much of the lakefront, particularly for the songbirds and smaller mammals.

The conditions described begin their transition from the junction of MT-83 and MT-35 (at Bigfork) to a more agrarian setting just beyond the project's northern terminus. Here, fragmented stands of Ponderosa Pine and Douglas Fir intermingle with residential, highway and agricultural clearings to the disadvantage of the area's remaining biological resources. Many of the native plant species encountered south of the junction do not appear north of the junction, giving way to a mix of ruderal (weedy, often non-native) roadside weeds and grasses.

Over 20 ruderal species were recorded during the project's biological surveys. The state of Montana List of Category I Noxious Weeds includes: Spotted Knapweed, Creeping (or Canada) Thistle, Houndstongue, and Common Tansy. None of the Category I noxious weeds appear significantly problematic along the project corridor. The non-listed ruderal species, which are established throughout the corridor, include: Prickly Lettuce, two species of Sowthistle, Yellow and White Sweetclover, Black Medic, Flannel-leafed Mullein, and Musk Thistle. A number of non-native roadside grasses (i.e. Smooth Brome, Crested and Intermediate Wheatgrass, Orchard Grass, and Kentucky Bluegrass) afford broken groundcover along most fill slope areas.

3.14.2 Vegetation Impacts

3.14.2.1 No-Action Alternative. There would be no impacts to vegetation as a result of the No-Action Alternative.

3.14.2.2 Preferred Alternative. Development of clear zones for the Preferred Alternative will result in a limited loss of roadside native plants. This loss will be most identifiable during the construction period when construction for new alignment elements, slope widening for extended shoulders, and the new meandering bike and pedestrian path is underway. Because the area is heavily vegetated and due to timely commencement of re-vegetative measures, loss of this cover will be negligible to plant communities. Construction-related ground disturbances would provide optimum growing conditions for the numerous weedy species presently found in the area.

3.14.3 Mitigation

The following steps will be taken to mitigate any negative impacts of the Preferred Alternative:

- ▶ Re-vegetation of all areas (disturbed by construction) outside of the paved roadway and within the right-of-way will occur in a timely fashion in order to establish desirable species and reduce noxious weed infestations.
- ▶ Comply with the requirements of the County Noxious Weed Management Act Title 7 Chapter 22 Part 21.
- ▶ Clearing and grubbing operations, including tree removal in riparian areas, will be restricted to the minimum area necessary to accommodate the planned reconstruction activities and improvements.



3.15 Threatened & Endangered Species

Information pertaining to endangered, threatened, sensitive and rare animals and plants was sought from the US Fish and Wildlife Service (USFWS), the Montana Natural Heritage Program (MNHP), the Montana Department of Fish, Wildlife and Parks (MDFWP), and the US Forest Service (USFS). The Montana Rivers Information System (MRIS, 1999) was reviewed to gather aquatic resource data for the project's involvement with the Swan River and its upper tributaries.

The initial biological/wetland work was conducted in August 1999, with a follow-up visit to the project area on 29 April, 2000. Field observations were gathered by walking and driving the 11.0 km (6.85 mi) route. Vegetative communities, wetlands, wildlife and fishery resources, as well as habitat utilization were evaluated with particular attention given to the presence of wildlife, tracks, scat, and nest structures, both within and near the right-of-way.

3.15.1 Affected Environment

3.15.1.1 Bald Eagle (Threatened, proposed for Delisting): In addition to being area migrants, bald eagles frequent the Flathead region as summer and winter residents. The nearest active nesting territory on record is near Loon Lake, far from MT-35. The eagles use the study area mainly for foraging the lakefront. According to the MDFWP, in recent years, there have been no recorded incidents involving eagles being struck by vehicles in the project area. MDFWP partially attributes this to the prompt removal of vehicle-related deer kill within the highway right-of-way. MDT maintenance personnel make a continued, concerted effort to remove freshly killed animals from the right-of-way to minimize carnivore mortality.

Functional bald eagle nesting territories may appear at anytime along the project route due to an expanding eagle population nationwide. As a result of population recovery, the species is under consideration for de-listing; however, bald eagles will continue to be protected by Federal law.

3.15.1.2 Grizzly Bear (Threatened): Grizzly bear sightings occur along the northern tip of the Mission Range and the species occasionally damages foothill orchards (Ingebritson, pers. comm.). Reclusive by nature, grizzly bears have not been regularly documented in the vicinity of the study area. Carnivore experts do not consider the eastside lakefront as a linkage point to other habitable ranges (Reudiger; Ingebritson, pers. comm.). Any grizzly occupancy today is generally expected in the more rugged portions of the Mission Range, well distanced from the project. Consequently, biologists consider the presence of this largest carnivore, even as an infrequent transient, as an extremely remote possibility within the study area.

3.15.1.3 Gray or Northern Rocky Mountain Wolf (Threatened): In spite of recently successful wolf recovery efforts throughout much of the west, the study area is not known to contain wolves and is not considered by biologists to be well suited for wolf reoccupation due to dramatic habitat fragmentation along the lakefront over the last several decades. The consequent lack of seclusion suggests little future area preference by gray wolves.

3.15.1.4 Canada Lynx (Threatened): Canada lynx have been recently added to the endangered species list. The lynx generally occupies higher elevation sub-alpine forests, which occur in parts of the Mission Range. This particular species is only likely appear with the most extreme infrequency in the study area and general vicinity. Federally funded studies are in progress throughout many parts of the northwest. Little is definitively known of lynx numbers or their broad movement at this time. Neither the USFS nor USFWS personnel contacted are aware of any documented sightings near the project area. The area is believed to be unsuitable for Canada lynx passage to more distant ranges.



3.15.1.5 Water Howellia (Threatened): Water howellia is an aquatic plant associated with vernal, freshwater ponds and sloughs of the western Montana valley zone. The species is a glabrous, multi-branched, annual with both submerged and floating stems 10 to 102 cm (4 to 40 in) in length. Known populations are listed by the state's Natural Resources Information System (NRIS) as occurring only within such wetland habitats of the Swan River Valley just east of the Mission Range. Although these wetlands differ markedly from those encountered along the Bigfork project, the study area was searched for water howellia during wetland delineations and the sensitive plant survey. No water howellia were found and the species is not considered a factor in the construction of this project.

3.15.1.6 Bull Trout (Threatened): Bull trout were listed as threatened for the Klamath River and the Columbia River population segments in June 1998 (USFWS 1998a). The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, and the introduction of non-native species.

In the upper Columbia River geographic area, bull trout are found in two large drainages, the Kootenai River and the Pend Oreille River, which includes the Flathead basin. Historically, bull trout were found in larger portions of the area. Numerous dams habitat have fragmented and degraded bull trout habitat and isolated the species into 71 sub-populations in 9 major river basins.

It is commonly agreed that the bull trout are extirpated in the 64 lakes and streams of various sizes within the local area. The upper Columbia River area contains strongholds for bull trout that include Hungry Horse Reservoir and Swan Lake. Population trends are stable in Hungry Horse Reservoir and increasing in Swan Lake (USFWS 1998a).

Bull trout are likely to occur in the Flathead Lake and Swan River near the project area. Bull trout below the Bigfork Dam are considered part of the Flathead Lake/River sub-population and bull trout above the dam are considered part of the Swan River sub-population. The two sub-populations are isolated from each other. The Flathead Lake/River sub-population of bull trout migrates to tributaries of the North and Middle Forks to spawn. No spawning tributaries occur on the Swan River downstream of Bigfork Dam. Both fluvial (river) and adfluvial (Flathead Lake) bull trout are likely to occur in the study area.

Bull trout typically spawn from August to November during periods of decreasing water temperatures. Migratory bull trout frequently begin spawning migrations as early as April, and have been known to move upstream as far as 249 km (155 mi) to spawning grounds (Fraley and Shepard 1989). Adult migratory bull trout quickly return to the Flathead River and Lake after spawning.

The MRIS database rates the habitat for bull trout in the Swan River between the mouth and Bigfork Dam as limited value. Deciduous shrubs dominate the vegetation along the banks and the riparian zone consists of a mix of deciduous shrubs and coniferous trees. The MRIS database rates subsurface cover as fair. Some large woody debris was observed during an April 2000 site visit.

In November 2002, the U.S. Fish and Wildlife Service proposed designation of critical habitat for the bull trout (FR Vol 67, No. 230). Proposed critical habitat in or near the project area consists of Flathead Lake below the ordinary high water mark. The segment of Swan River from Bigfork Dam to Flathead Lake is not proposed as critical habitat, although the Swan River above Bigfork Dam is proposed critical habitat.

3.15.2 *Threatened & Endangered Species Impacts*

3.15.2.1 No-Action Alternative. The No-Action Alternative would not have any effect on threatened or endangered species.

3.15.2.2 Preferred Alternative. The following are possible impacts associated with the Preferred Alternative on each species. **Table 3-13** summarizes all threatened and endangered species, their federal status, occurrence in the project area, primary habitat affected and the determination of effect.



Table 3-13
Threatened & Endangered Species Summary of Bigfork North & South Project

Species	Status	Primary Occurrence in the Project Area	Primary Habitat Affected	Determination of Effect
Bald Eagle	Threatened	Known occurrences as migrants and foraging individuals, no active territories, but minor potential for nesting habitat	None	Not likely to adversely affect
Grizzly Bear	Threatened	No Known occurrences, but present in the adjacent Mission Range. No linkage potential	None	Not likely to adversely affect
Gray Wolf	Endangered	None known, unsuitable habitat	None	No Effect
Canada Lynx	Threatened	None known, unsuitable habitat	None	No Effect
Water Howellia	Threatened	None known, unsuitable habitat	None	No Effect
Bull Trout	Threatened	Indigenous to Swan River Drainage,	Possible short-term impacts with new bridge construction near the mouth of the Swan River. In Nov. '02, the USFWS proposed designation of critical habitat for the bull trout (FR Vol 67, No. 230), in or near the project area, of Flathead Lake below the ordinary high water mark. The segment of the Swan River from Bigfork Dam to Flathead Lake is not proposed as critical habitat, although the Swan River above Bigfork Dam is proposed critical habitat.	May effect, not likely to adversely affect

- Bald Eagle: Based on the above information and recommended mitigation/coordination measures, it is determined that implementation of the proposed action is not likely to adversely affect the threatened bald eagle.
- Grizzly Bear: Based on the above information, it is determined that implementation of the proposed action is not likely to adversely affect the threatened grizzly bear.
- Gray Wolf: Based on the above information, it is determined that implementation of the proposed action will have no effect upon the gray wolf.
- Canada Lynx: Based on the above information, it is determined that implementation of the proposed action will have no effect on the Canada lynx.
- Water Howellia: Based on the above information, it is determined that implementation of the proposed action will have no effect upon water howellia.
- Bull Trout: While the project is not expected to take any bull trout, the remote possibility remains that individual bull trout could be killed by the project. Of most concern is the potential for falling debris from bridge demolition to kill individual fish, which happen to occur in the area. Based on this possibility, the appropriate determination for the reconstruction of MT-35 is "may affect, not likely to adversely affect" bull trout. Detailed information on bull trout is presented in the *Bigfork North & South Biological Resources Report* (available at Carter & Burgess at 801.355-1112.)



3.15.3 Mitigation

3.15.3.1 Bald Eagle Mitigation/Coordination Measures

- ▶ All overhead power utility relocations shall be raptor-proofed in accordance with MDT policy.
- ▶ Removal of mature trees suitable for perch sites should be minimized during all clearing operations.
- ▶ MDT's district biologist will be informed by the Contractor of any occupied eagle nest observed within 0.8 km (0.5 mi) of the proposed project during construction.
- ▶ MDT's practice of promptly removing vehicle-struck animals should be continued to discourage the presence of foraging birds within the right-of-way.
- ▶ Raptor proofing of appropriate electrical utilities is a MDT policy that benefits Threatened and Endangered species as well as the many other area raptors that perch on artificial structures.

3.15.3.2 Grizzly Mitigation/Coordination Measures

Grizzly bears are not known or suspected to range the highway corridor, or to depend upon the corridor as a point of crossing. As such, one general mitigative measure is recommended, and no specific mitigation/coordination measures are required.

- ▶ MDT's District Biologist will be notified by the Contractor of any suspected grizzly bear reports or sightings for the duration of the project. This ensures adequate coordination between the various agencies and minimizes any potential for conflict or project delay in the event of grizzly occurrence. The minimal development of clear zones would facilitate any movement of bears and other rare carnivores in the corridor.

3.15.3.3 Gray Wolf Mitigation/Coordination Measures

With little change in project lane configuration, any future wolf population in the area would likely be unaffected. Avoidance of harmful effects would be assisted by modest clear zone development that would benefit local wildlife and also assist motorists who drive at a safe, manageable speed to avoid most collisions with crossing animals. Accordingly, and in light of the present absence of documented wolf presence, no mitigation/coordination measures are recommended.

3.15.3.4 Canada Lynx Mitigation/Coordination Measures

The absence of harm to a species that is not known to occur or significantly utilize the project area suggests that no mitigation/coordination measure be recommended.

3.15.3.5 Water Howellia Mitigation/Coordination Measures

The suspected absence of water howellia along this west side of the Mission Range and the lack of preferred habitat within this project's wetlands warrants that no such measures be recommended.

3.15.3.6 Bull Trout Mitigation/Coordination Measures

The possibility for the construction of the new Swan River Bridge causing the death of a bull trout exists, but is highly unlikely. Work on the bridge may result in falling debris, which could result in fish mortality. Falling debris may result from cutting the existing concrete deck, the steel girder and deck sections being lifted from the substructure, and during removal of the existing pier wall and footing. Cutting the concrete deck between each girder, and thereby allowing the girder and deck to be lifted from the substructure, will minimize the possibility of lead-based paint particles entering the waterway.



The following mitigative measures will be incorporated into the project to minimize potential effects from the project:

- ▶ Maintain BMP within the construction areas to minimize the potential for sediment, oil and fuel contamination in the waterways.
- ▶ Collect and dispose of all waste fuels, lubricating fluids, herbicides, and other chemicals in a manner compliant with the label and local regulations.
- ▶ Notify the USFWS Montana Field Office within 24 hours if any bull trout are found dead, injured, or sick.
- ▶ Reclaim disturbed areas following disturbance.
- ▶ BMPs including appropriate erosion control and sedimentation control methods are required to help minimize sedimentation into the river and lake.



3.16 Flood Plains

3.16.1 Affected Environment

Figure 3-12 shows the locations of the 100-year flood plains for the Swan River and Flathead Lake within the project study area. This information is based on flood hazard area maps prepared by the Federal Emergency Management Agency (FEMA) for Flathead and Lake Counties. The Swan River runs approximately 24 km (15 mi) from Swan Lake before flowing into Flathead Lake. MT-35 crosses an approximately 61 m (200 ft) wide section of the 100-year flood plain of the Swan River. The MT-35 Bridge at this location completely spans the flood plain. MT-35 also parallels the Flathead Lake 100-year flood plain from the southern project terminus to the north for approximately 229 m (750 ft). The beneficial flood plain values associated with water resources include natural moderation of floods, water quality, fish, wildlife, and plant maintenance, natural beauty, and irrigation.

3.16.2 Flood Plain Impacts

3.16.2.1 No-Action Alternative. The No-Action Alternative would result in no new encroachment upon the 100-year flood plain.

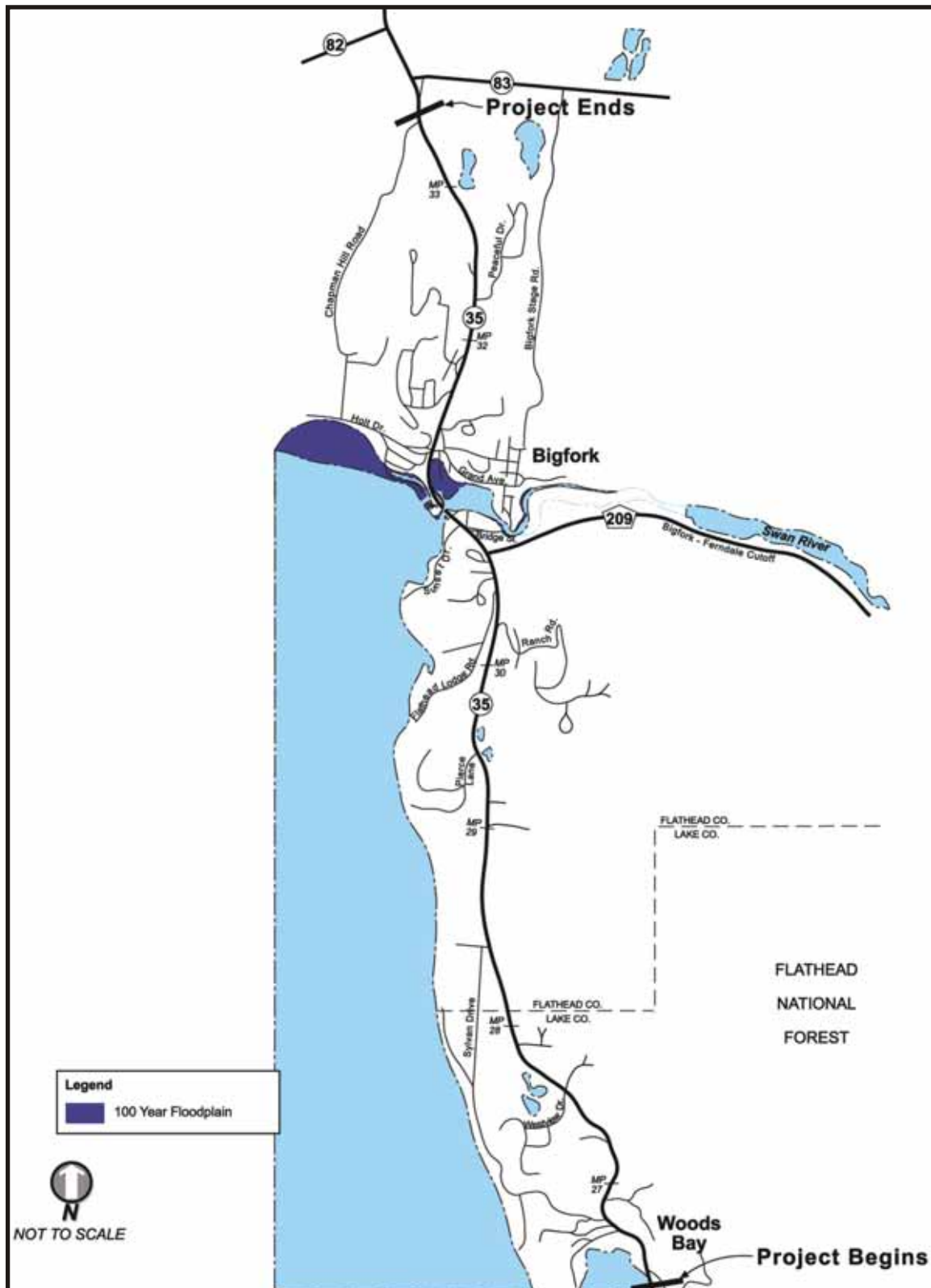
3.16.2.2 Preferred Alternative. Executive Order 11988 and FHWA's flood plain regulations (23 CFR 650, Subpart A) requires an evaluation of the proposed action to determine if any of the alternatives encroach on the base flood plain. Any proposal to increase road grades would need to be evaluated to determine the effects on flood elevation, re-direction of flows, and the increased risk to insurable property. If the road grade elevation were raised within the delineated flood plain areas, a complete study would be required to verify that the flood carrying capacity would not be reduced. Flood elevations would be consistent with the current FEMA flood plain regulations, and the proper coordination would be maintained with Flathead and Lake Counties. MDT standard procedures would ensure that the proper flood plain permits would be obtained due to these encroachments in the delineated flood plain. The Preferred Alternative would create no impacts within the 100-year flood plain of the Swan River and Flathead Lake, except for the repair of existing riprap protection in the vicinity of the Swan River Bridge. The proposed project is therefore considered to be in compliance with E.O. #11988.

3.16.3 Mitigation

Since the flood plain encroachment that may occur with the Preferred Alternative is not considered a significant encroachment, no mitigative measures are necessary.



Figure 3-12 100 Year Flood Plain





3.17 Cultural Resources

3.17.1 Historic Resources

A cultural resource survey including a field assessment and historical research was completed by Tracks of the Past Consulting in May 2000. The purpose of the survey was to obtain information specific to each historic property identified, and to develop an historic overview of the area. Information was gathered from the Flathead and Lake County Courthouses, Flathead County Library, Flathead National Forest, and the Montana Historical Society. The Montana State Historic Preservation Office (MSHPO) and the Confederated Salish and Kootenai Tribes - Tribal Preservation Office were consulted, and interviews were held with selected current and former residents of the project area.

On 20 March, 2001, MSHPO agreed that of the 36 historic sites recorded in the project survey, eight were eligible for inclusion in the National Register of Historic Places (NRHP). Two are individually eligible for listing, and six are contributing elements within the potential Shore Acres Historic District.

The first eligible property (site 24LA231) is a commercial, roadside structure that was built in stucco and in the shape of a teepee. It was constructed during World War II (ca. 1944). Conrad Peterson designed and built this structure as a café/residence. He ran the business until early in the 1960s when Jack and Mary Ann Rickard traded a lot on a ranch for the property. After the Rickards closed the café, the teepee served as a second hand store and was then vacant for a number of years. The Rickards traded the teepee for a house in Bigfork in 1976.

The second eligible property (site 24LA234) is the Bergie Tourist Court. This complex includes a residence/motel office, garage, shed, and several guest units. Francis Culbert who built the residence about 1941 originally owned part of this property. By 1949, Culbert sold the property to Martin and Mary Bergie who obtained title to all five lots on the property by 1950. The Bergies owned and managed the tourist court/motel until 1975. The property is currently split between two separate owners; however, it is still managed together as a tourist court/motel.

The potential Shore Acres Historic District is located at the southern end of the project corridor. It consists of at least sixteen lots within the Shore Acres subdivision, which was created in 1931 from part of the Estey homestead on the east shore of Woods Bay. Most of the residences in the proposed district were built in the 1930s and 1940s. Only six of the 16 lots are within the project study area. The eligible historic sites are listed in **Table 3-14** and are shown on **Figure 3-13**.

The Swan River Bridge was not included in the cultural resources survey. This bridge was constructed in 1954, and is considered as a cultural property. MDT has prepared a site evaluation form for the bridge. The Swan River Bridge is discussed in Section 1.8: Swan River Bridge Deficiencies.

3.17.2 Archaeological Resources

Lone Wolf Archaeology inventoried the corridor for prehistoric cultural resources in spring 2000. A pedestrian survey was conducted on each side of the highway, paying special attention to areas likely to show evidence of cultural activity such as cutbanks, hilltops, and areas of erosion. No prehistoric sites, prehistoric isolated artifacts, or other prehistoric cultural resources were found as a result of this inventory.



Figure 3-13 Cultural Resource Sites

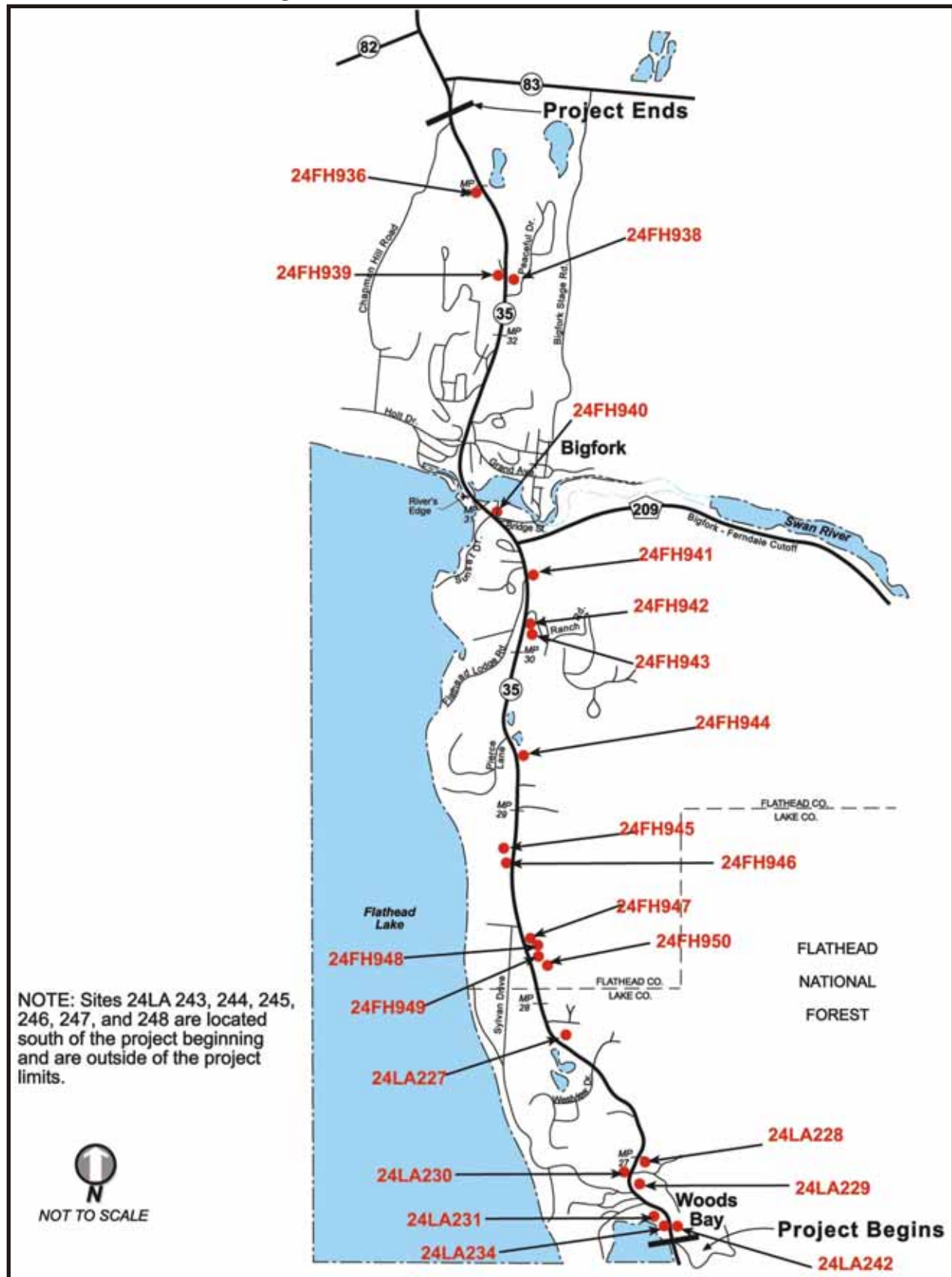




Table 3-14
Eligible Sites Within the Study Area

Site No.	Site Name	Site Type	NRHP Status	Date
24LA231	Teepee	Commercial	Eligible	ca. 1944
24LA234	Bergie Tourist Court	Commercial (Lodging)	Eligible	1941-97
24LA242	Salzman Cabins	Commercial (Lodging)	Eligible - Contributing Property to Potential Shore Acres Historic District	ca. 1935
24LA243	Micken House	Residential	Eligible - Contributing Property to Potential Shore Acres Historic District	ca. 1935
24LA244	Hendricks House	Residential	Eligible - Contributing Property to Potential Shore Acres Historic District	1937
24LA246	Remer House	Residential	Eligible - Contributing Property to Potential Shore Acres Historic District	ca. 1938
24LA247	Orvis House	Residential	Eligible - Contributing Property to Potential Shore Acres Historic District	1938
24LA248	Goeddertz House	Residential	Eligible - Contributing Property to Potential Shore Acres Historic District	ca. 1931

3.17.3 Section 4(f) Evaluation

The provisions of Section 4(f) of the 1966 U.S. Department of Transportation Act (49 U.S.C. 303) apply to any FHWA-funded action when it affects the following:

- A. Publicly owned parks and/or recreation areas.
- B. Publicly owned wildlife/waterfowl refuges.
- C. Sites on or eligible for listing in the National Register of Historic Places under Section 106 of the National Historic Preservation Act (16 U.S.C. 470).
- D. Public lands managed for multiple-use with specifically designated recreational or wildlife/waterfowl management site(s), and under statute(s) providing for the same. This applies only to the same specific site(s).

Section 4(f) prohibits use of public land in a park, recreation area, significant waterfowl or wildlife refuge, or significant historic site, unless:

- 1. There is no prudent or feasible alternative to using that land.
- 2. The program or project includes all possible planning to minimize harm.

According to the regulations in 23 CFR 771.135(a), a Section 4(f) evaluation must be prepared for use of the Section 4(f) property. Two types of use constitute impact to a Section 4(f) property:

- ▶ Direct conversion of use of a Section 4(f) property that results from the purchase, lease, easement, or agreement to change the use of all or a portion of the property.
- ▶ Constructive use that results from an action that would “substantially impair” current use of a Section 4(f) property. Constructive use can occur from impacts related to noise, visual intrusion, major access restrictions, vibration, or ecological intrusion. For historic properties, a constructive use occurs when there is an impact that would substantially impair the historic integrity of the property.



3.17.4 *Cultural Resources and Section 4(f) Impacts*

3.17.4.1 No-Action Alternative. This alternative would not result in any impacts to existing cultural resources within the project study area.

3.17.4.2 Preferred Alternative. Except for impacts to the existing Swan River Bridge, this alternative would have no effect on any properties eligible for protection under Section 4(f). The design of the Preferred Alternative has purposefully avoided several eligible properties along the project route and the properties now fall outside of the project construction boundaries. Any right-of-way acquisition has been designed to avoid 4(f) sites. Construction activities occurring within the designated right-of-way will have no effect on Section 4(f) resources, other than the construction of the new Swan River Bridge.

The existing Swan River Bridge, constructed in 1954, has been determined to be a property eligible for protection under Section 4(f). The Swan River Bridge will be affected by the Preferred Alternative. The effect consists of the destruction of the present bridge. Numerous bridges on the MDT highway system qualify for protection under Section 4(f) and are deficient and in need of replacement. A “programmatic” approach to the Section 4(f) eligibility has been developed to address these bridges. An agreement between the Advisory Council on Historic Preservation, the Montana Division of the Federal Highway Administration, and the Montana State Historic Preservation Office is in place and provides a uniform, or programmatic approach for projects having an adverse effect on historic bridges. The Swan River Bridge qualifies for evaluation under terms of this agreement. Appendix D contains the Nationwide Programmatic Section 4(f) Evaluation for Historic Bridges form, which was completed for the Swan River Bridge.

3.17.5 *Mitigation*

On-site field reviews, public meetings with concerned citizens, and consultations with MDT’s cultural resources historian were held concerning the Section 4(f) properties. Based on that coordination and the design for the project, and except for taking photos of the Swan River Bridge, no measures to minimize harm are proposed for 4(f) properties.

Except for the Swan River Bridge, no 4(f) properties would be affected by any of the Preferred Alternative. The proposed action would not affect any publicly owned parks or recreation areas, public wildlife/waterfowl refuges, or publicly administered multiple-use lands.



3.18 Hazardous Materials

A Phase I Environmental Site Assessment (ESA) was conducted to evaluate the potential for encountering hazardous materials and/or waste within the Bigfork North & South Roadway Reconstruction Project study area. The assessment is based on information obtained from record review, interviews, aerial photograph interpretation, historic city directory analysis and visual site inspections. Oil and gas well locations were surveyed in coordination with the Montana Bureau of Mines and Geology. An environmental database search of federal and state listed hazardous materials locations, including federal and state registered water well locations, was conducted in coordination with Environmental Data Resources, Inc.

3.18.1 Affected Environment

Land use adjacent to the MT-35 project corridor is primarily commercial and residential in the areas of Bigfork and Woods Bay and mixed residential, commercial, agricultural, and open space outside of the respective city limits. There are several areas of undeveloped forested land adjoining the MT-35 project corridor, although, much of the forested land is mixed with residential use.

The primary exceptions to the commercial and residential development are recreation uses along Flathead Lake and agricultural use to the north of Bigfork.

Results of the well survey identified no wells in the project area associated with oil and gas production including Class II disposal wells used for the disposal of produced water from oil and gas production.

Table 3-15 lists sites of potential concern discovered during the database investigation. These sites include Underground Storage Tanks (USTs) and Leaking Underground Storage Tanks (LUSTs) within the study area.

3.18.2 Hazardous Waste Impacts

Table 3-15
Sites Identified as Potential Environmental Concerns

Site	Address	Type*	Source**
Former Husky Station	470 Electric Ave, Bigfork MT	LUST	EDR
St. Catherine's Church	105 Oliver Lane, Bigfork MT	UST	EDR
Eagle Bend Yacht Harbor	700 Holt Drive, Bigfork MT	UST	EDR
Bill's Gas & Grocery	8089 MT-35, Bigfork MT	LUST	MDEQ File Review/EDR
Sinclair Station	8111 MT-35, Bigfork MT	UST	MDEQ/EDR
Bigfork Stage Stop	8263 MT-35, Bigfork MT	UST	MDEQ/EDR
MDT Swan Lake Site	Montana Highway 83	LUST	MDEQ/EDR
Flathead Lake Lodge	Flathead Lodge Road, Bigfork MT	UST	MDEQ/EDR
Anderson, Edith E.	21634 East Lakeshore Dr, Bigfork MT	LUST	MDEQ/EDR
MDT	MP-35 MT-35, Bigfork MT	LUST, UST	EDR
Bigfork Masonic Lodge #150	8098 MT-35, Bigfork MT	UST	MDEQ/EDR
Yellow Bay Store	17998 East Shore Route, Bigfork MT	LUST	EDR
Bob's Woods Bay market (CONOCO)	26787 MT-35, Bigfork MT	UST	Field Assesment/MDEQ
Bay View Resort & Marina	543 Yenne Point Rd, Bigfork MT	LUST, UST	MDEQ/EDR
Marina Cay Resort	180 Vista Dr, Bigfork MT	UST	EDR
Former Shorty's Gas Station	7958 MT-35, Bigfork MT	Not listed with MDEQ	Polk City Directories
Raven (formerly Windjammer Bar)	25999 Eastshore Dr MT-35, Woods Bay MT	LUST	MDEQ/EDR

*Type:

LUST (Leaking Underground Storage Tank)
UST (Underground Storage Tank)

**Source:

MDEQ (Montana Department of Environmental Quality)
EDR (Environmental Data Resources, Inc.)



3.18.2.1 No-Action Alternative. This alternative will have no effect on hazardous materials.

3.18.2.2 Preferred Alternative. During construction of the Preferred Alternative, there is the potential for encountering contaminated soil and groundwater within the proposed construction area.

The following UST sites may require UST system removal. Exact requirements will be determined during final design and based on actual property acquisition.

- ▶ Sinclair Station, 8111 MT-35, Bigfork, Montana. No new acquisitions of right-of-way have been identified. However, the present facility appears to encroach upon existing highway right-of-way. This site may require removal of the UST system due to the proximity of the UST's and/or associated underground piping to the proposed right-of-way. Removal of the UST system should be performed in accordance with the applicable federal, state and local regulations.
- ▶ Bigfork Stage Stop, 8263 MT-35, Bigfork, Montana. Additional right-of-way requirements have been identified. This site may require removal of the UST system due to the proximity of the UST's and/or associated underground piping to the proposed right-of-way. Removal of the UST system should be performed in accordance with the applicable federal, state and local regulations.

The following three sites would be impacted due to construction of the Preferred Alternative.

- ▶ Bob's Woods Bay Market (Conoco Station), 26787 MT-35, Woods Bay, Montana. Additional right-of-way requirements have been identified. This site may require removal of the UST system due to the proximity of the UST's and/or associated underground piping to the proposed right-of-way. Removal of the UST system should be performed in accordance with the applicable federal, state and local regulations.
- ▶ Former Shorty's Gas Station, 7985 MT-35, Bigfork Montana. During construction, it is possible that former underground lines, including possible UST fuel lines, may be encountered at this site.
- ▶ Swan River Bridge Structure. The Preferred Alternative will include replacement of the Swan River Bridge. Due to the age of the structure, it is likely that it is painted with lead-based paint. A formal lead-based paint survey should be performed prior to any demolition work.

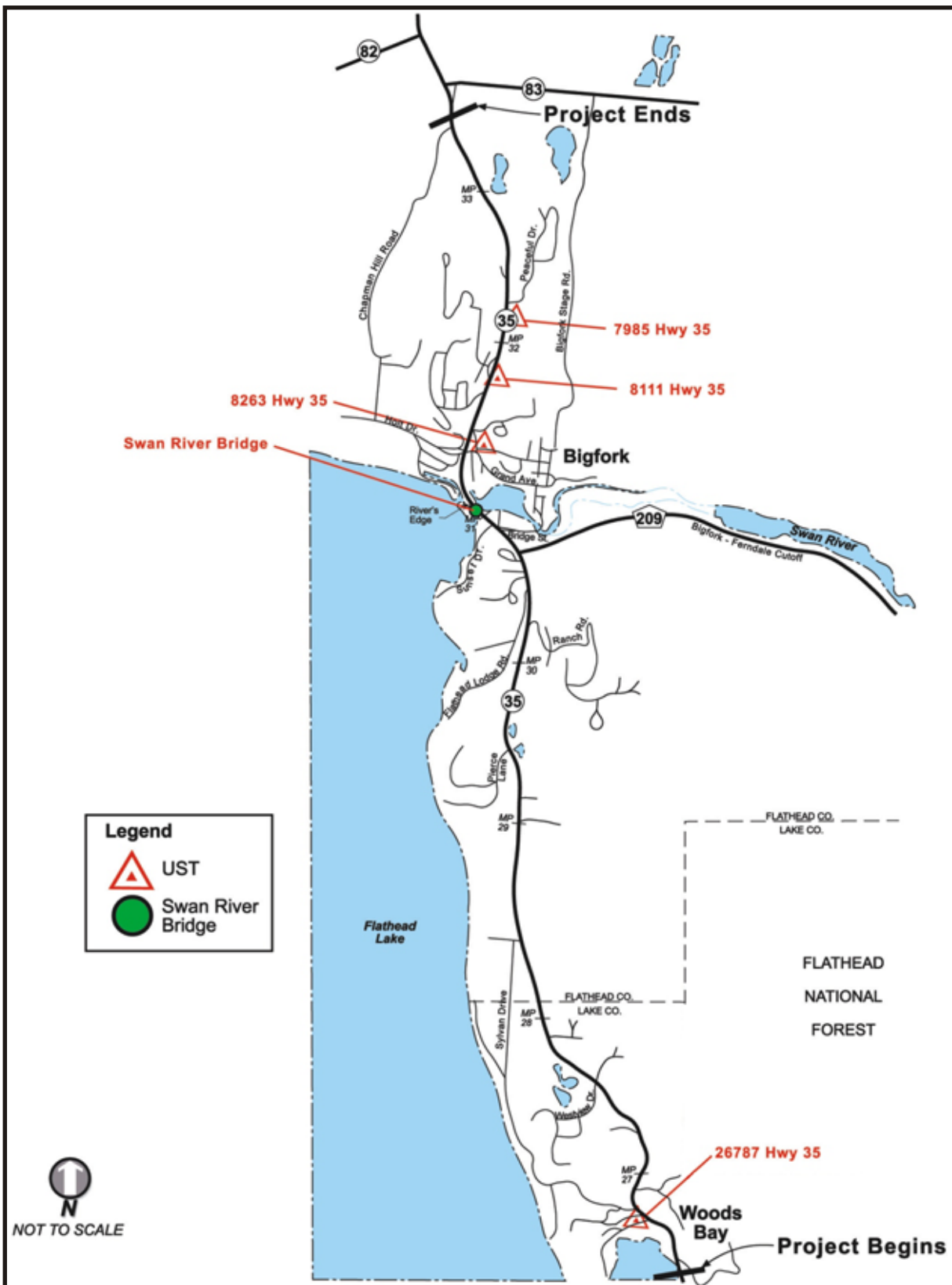
Table 3-16 and **Figure 3-14** illustrate sites of potential impact due to the project construction and the concerns with each site.

Table 3-16		
Sites of Potential Impact		
Sites of Potential Impact	Location	Concerns
Sinclair Station	8111 MT-35, Bigfork MT	No documented environmental violations. May require further action including UST closure due to the proximity of UST to the proposed right-of-way
Bigfork Stage Stop	8263 MT-35, Bigfork MT	No documented environmental violations. May require further action including UST closure due to the proximity of UST to the proposed right-of-way
Bob's Woods Bay Market (CONOCO)	26787 MT-35, Bigfork MT	No documented environmental violations. May require further action including UST closure due to the proximity of UST to the proposed right-of-way
Former Shorty's Gas Station	7985 MT-35, Bigfork MT	UST removed, no evidence of soil or groundwater contamination, location of underground fuel lines including remaining UST fuel lines should be identified prior to construction
Bridge Structure over the Swan River	MT-35, Bigfork MT	This structure contains lead paint. All appropriate hazardous materials handling procedures must be followed

3.18.3 Mitigation



Figure 3-14 Hazardous Materials Sites





Phase II soil sampling should be conducted at the edge of the MDT right-of-way, adjacent to all existing service stations/UST sites along the project corridor. Soil borings should be installed to a depth of 3 m (10 ft), or the depth of the planned excavation, whichever is greater. Soil samples should be collected at 0.3 m (1 ft) intervals and analyzed for Total Petroleum Hydrocarbons (TPH Method 8270-C) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX). Analysis of soil samples will indicate whether there are impacts to soil from service station operations within the right-of-way. Where possible, as-built drawings of all service station tanks and piping along the corridor should be obtained prior to any excavation or soil boring installation.

Potential impact to human health and safety should be minimized through proper identification and management of contaminated materials in accordance with local, state and federal regulations.

Chemical contamination in soil and/or groundwater may be encountered during project construction. Contaminated media, if unexpectedly encountered during construction, will be properly managed. In the event that such impacted media are encountered during construction activities, health and safety issues to workers must be addressed. A construction contingency plan should be in place to address contaminant management and health and safety issues.

The Swan River bridge is painted with lead-based paint. In the event that demolition requires cutting or grinding of the painted steel, a materials management plan and health and safety plan should be in place to address this issue. All demo work should be performed by a contractor licensed in handling lead-based paint.



3.19 Visual Resources

MT-35 is a two-lane road with a variety of feature views and panoramic vistas. Sight distance is limited in many areas with the current horizontal alignment and consequently, views of foreground, mid-ground and background vary considerably.

Forested and riparian landscapes, wide-open expanses, water features, compact areas of commercial development and residential development characterize existing landscape character.

The visual assessment process includes a landscape inventory, visual assessment of physical resources an analysis of the Preferred Alternative's impacts on the visual resources, and the development of reduction measures in order to mitigate impacts.

The corridor was assessed in two parts. First heading Northbound from the Woods Bay area towards Bigfork, second, returning from the Bigfork area heading Southbound towards the Woods Bay area. Landscape elements visible from the corridor were noted traveling in both directions and are described in the following section.

3.19.1 Affected Environment

This section provides an overview of existing conditions by the direction of travel. It is important to note that the landscape was inventoried from the existing alignment and many of the attributes evaluated, aside from the feature views, are directly adjacent to the existing alignment. Feature views designate the areas in the alignment, whether positive or negative, that are unique to that project area, and set apart from other homogenous areas within the corridor. Generally speaking, landscape character is only described when a changed condition occurs.



South End of Corridor- Woods Bay and top of Woods Bay Hill (RP 26.7)

The alignment is tightly constrained in this area so views are limited. Sporadic residential and commercial development is visible directly adjacent to the roadway. This development is interspersed with a dense coniferous forest. Due to limited sight distance, mid-ground or background views are not available.



Continuing Northbound at RP 28.4

The roadway is a very straight two-lane roadway in this area with a tall fence adjacent to the road on the west side. On either side of the road, in the foreground, are dense stands of coniferous trees. There are several utility lines located adjacent to the roadway, which diminish the rural integrity of the area. Also, there is a large fill slope, which is 1.8 to 2.4 m (6 to 8 ft) high on the east side of the road. There are no mid-ground views or developments visible from the alignment; however, intermittent areas feature views of mountains in the background.



Northbound at RP 29.2

The foreground view is rather homogenous for the last 3.2 km (2 mi), with trees and utilities adjacent to the roadway. Both deciduous and coniferous trees continue to be adjacent to either side of the roadway in the foreground. Utilities remain adjacent to the road on the west side. No other sign of development is visible. The road begins to curve throughout this section limiting sight distance, therefore, there are no mid-ground or background views.



Northbound RP 30.4

The alignment in this area continues to be two lanes with guardrail adjacent to the road on the west side. There are large stands of trees located behind the guardrail. A small dense commercial area comprised of 10-20 buildings is visible in the foreground on the east side of the road. The road curves in this segment limiting sight distance to the mid-ground and background views. The utilities have crossed from the west side of the road to the east side of the road and remain apparent as a dominant foreground feature.





Northbound RP 30.7

The alignment in this area becomes three lanes with a left turn lane and blinking signal to access the commercial area. There is a small commercial community contained within the foreground of this area. Utilities are no longer visible and the clear zone has become substantially wider in this part of the corridor. The road does a slight 'S' curve in the mid-ground. There are rolling foothills visible in the mid-ground with dense stands of trees covering them. There is no background visible. The road narrows and becomes tightly constrained with guardrail over the bridge at RP 31.

Northbound at RP 31.9

The foreground element in this area changes radically with a wider cross section containing two lanes and a center turn lane. Signalized lights are also visible with a much larger clear zone. On the west side there is a fill slope, which is 3.7 m (12 ft) high with sporadic trees. A couple of residences are also visible in the foreground. The east side has dense commercial development with a few trees visible and no mid-ground view. The background contains a feature of the Swan Mountain Range visible to motorists traveling the roadway.





RP 33.1 Nearing End of Project Area

The view changes significantly in this area. The alignment changes to two lanes and is no longer tightly constrained on either side. The roadway enters a wide-open area containing agricultural features covered with short grass. The land on either side of the road is flat with few topographic features. A few large farmsteads are visible from the road. The mid-ground views are a wide-open vista of sky with no trees or development visible. The background view to the east contains a feature view with the Swan Mountain range visible.

Southbound

Note: Fewer views traveling southbound are included than in the northbound direction. Because of the homogenous nature of the alignment, additional views of the southbound roadway alignment would be redundant.

North End of the Corridor Traveling South Towards Woods Bay

This view-shed contains a segment of the roadway right before entering Bigfork. There is a single row of trees screening the adjacent development from the motorist. There is a small clear zone in this area but the road is tightly constrained on either side by the development and trees. The mid-ground is barely visible from the alignment. There is one hill covered with trees visible to the east. The background is not visible from the roadway.





RP 31.3 Entering the Community of Bigfork

A primary foreground element is the large signalized intersection, visible near the entrance to the community of Bigfork. To the west of this intersection, there is a feature view of Flathead Lake with the foothills behind it. East of the intersection, there is a large dense stand of trees mostly comprised of deciduous tree species. This stand blocks any mid-ground or background views. To the west there is a feature view containing the Swan Mountain Range.



RP 29.2

This view is representative of the typical section throughout much of the project area. The roadway is two lanes with trees on either side of the road, which constrains views to the mid-ground or background.



RP 27.2 Heading South Bound Approaching Project Beginning

Dense stands of trees line both sides of the road in the foreground, utility lines are located along the west side of the road and there is a 1.5-1.8 m (5-6 ft) fill slope located on the east side of the road. Mid-ground views feature rolling hills covered with trees. There is no background view. Heading southbound throughout much of the corridor there is no view of the background.

3.19.2 Visual Resource Impacts



3.19.2.1 No-Action Alternative. This alternative would result in no affect to the existing visual character.

3.19.2.2 Preferred Alternative. Visual impacts associated with the Preferred Alternative would be both short-term as well as long-term.

Short-term visual impacts associated with the Preferred Alternative include:

- ▶ Construction equipment and excavated material associated with the construction in the staging areas.
- ▶ Dust and debris associated with construction activity.
- ▶ Traffic congestion associated with construction activity.

Long-term visual impacts associated with the Preferred Alternative include:

- ▶ Slope cuts and fills, which would change the existing landscape character along the alignment.
- ▶ Expansion of the width of the paved surface for wider shoulders.
- ▶ Expansion of the width of the clear zone area.
- ▶ Additional structures such as retaining walls, guardrails, and roadside protective barriers.
- ▶ Enhanced long-distance (background) views.

The following descriptions detail the long-term visual impacts.

□ Cuts & Fills



Visual changes would occur in areas where the new or expanded roadway requires reconfiguration of the adjacent landscape. Retaining walls and modified slopes are used in the project to limit visual impacts of the Preferred Alternative. Cut and fill slopes are required nearly throughout the project length, including areas of curve re-alignments. Some new fill slopes will be confined by retaining walls, which will limit the visual impacts of the new construction. Retaining walls in fill sections will not be visible from the roadway and produce little visual impact to roadway users. However, some retaining walls may be visible to adjacent properties. In such circumstances, aesthetically pleasing wall formations will be used to minimize the negative impacts associated with the walls. Retaining walls in cut sections will be visible from the roadway, but will limit the amount of necessary landscape modification. Location of major cut/fill areas will include: The area between Daphne Pond and Flathead Lake Lodge Road, Ice Box Canyon, between Grand Avenue and Lake Hills shopping center, and the 'S' curve area of Woods Bay.

□ Pavement Width & Expanded Clear Zone

The motorist's view of the road with the foreground element would vary considerably from that provided by the existing road. There would be an increase in pavement width from approximately 7.9 m (26 ft) to a range of 10 to 18 m (32 to 59 ft) in area where additional turn lanes are proposed. This would be perceived as a noticeable difference in existing visual character.

Addition of clear zone areas, beyond the pavement width, would change the visual character, with more effects to those sections of MT-35 that are forested. Any large trees in the new clear zone would be removed. The clear zone varies from 6 to 7.6 m (20 to 25 ft) wide. The clear zone is measured from the edge of the travel lane and includes the shoulder area.

□ Roadside Structures

Roadside protective barriers will be placed in accordance with roadside safety criteria to protect motorists from roadside hazards. During the public involvement process, it was determined that the protective barriers in the Bigfork area will be crash-worthy and in the form of low profile imitation brick structures made from pre-cast concrete. Barrier types elsewhere in the project are yet to be determined and may include standard guardrails. The existing landscape character will be affected by the barriers, but to a substantially less extent than if earthwork modifications were used to eliminate roadside hazards. Protective barriers would affect the motorist's view traveling both northbound and southbound. Approximately 15% to 20% percent of the project length would be fitted with protective barriers.

3.19.3 Mitigation

- The contractor will not be allowed to cut trees to the right-of-way. Only trees with the construction limits will be allowed to be cut.
- Slope modifications in cut areas would be completed while trying to minimize impacts to existing foreground views.
- Drainage channels would be re-established and re-vegetated with appropriate materials.
- Erosion control measures would include, but not be limited to, rock riprapping and erosion control matting.
- Selected up-slope "cut" conditions may require retaining walls. In these locations, wall surfaces to be modified will be selected in the final design phase and coordination with the community to assure the appearance is consistent with the community values. Access and sufficient widths must be provided to accommodate maintenance activities.
- Both cut and fill areas, with the exception of rock cuts and retaining walls, will require re-vegetation.
- Plant material for re-vegetation would be compatible with tree, shrub and grass species existing



in the corridor. Tree replacement would help to sustain current foreground visual quality, however consideration must be given to the functional aspects of clear zones.

- ▶ Appropriate use of roadside protective barriers to provide shielding of roadside hazards. In the Bigfork area, barrier fascia and appearances will be selected in coordination with the community to assure the appearance is consistent with community values.

3.20 Construction & Erosion Control

3.20.1 Construction Impacts

3.20.1.1 No-Action Alternative. This alternative will result in no construction-related impacts.

3.20.1.2 Preferred Alternative. This alternative is expected to create short-term construction impacts throughout the construction period. Construction-related impacts include:

- ▶ Air Quality - Construction activities such as earthwork, grading, roadbed preparation, vehicles hauling soil or debris, and unprotected exposed soils can increase local fugitive dust emissions. Fugitive dust is airborne particulate matter, generally of a relatively large particulate size (greater than 100 microns in diameter). Because of the large size, these particles typically settle within 9 m (30 ft) of their source. Smaller particles can travel as much as 100 m (328 ft) depending on wind speed. Through the use of mitigation measures, fugitive dust emissions can be effectively controlled. See Section 3.9: Air Quality.
- ▶ Noise and Vibration - Construction noise and vibration would present the potential for short-term impacts to those receptors located along the corridor. The primary source of construction noise is expected to be diesel-powered equipment such as trucks and earth moving equipment.
- ▶ Water Quality - Storm water runoff from areas of exposed soils may cause erosion, sedimentation and transport of spilled fuels or other hazardous materials into adjacent waterways. Without mitigation measures, sedimentation may occur when eroded soils collect in areas below the construction site. See Section 3.11: Water Resources/Quality, for specific mitigation measures.
- ▶ Traffic Control - MT-35 is expected to remain open throughout the construction period. The roadway may be reduced to one-lane of traffic with flagging during some construction activities. Delays are expected to create short-term impacts on traffic. Access to all intersecting roads, residences, and businesses along the corridor will be maintained throughout construction. Minor detours may be required. During the community collaboration process, strongly held concerns were expressed regarding traffic control and construction delays. Much of the concerns were in connection to summer travel during the tourist season and the potential for the impacts to the tourist industry during the summer months. Additionally, concerns were expressed regarding the potential that some traffic may choose to detour through Bigfork Village and cross the river on an aging one-lane bridge that the community wishes to preserve.
- ▶ Boat Traffic - Construction of a cofferdam for removal of the existing pier will restrict but not prevent boat traffic. Boat traffic will not be permitted during removal of existing girders or during placement of new girders.
- ▶ Visual - Short-term construction-related visual impacts are likely to occur as a result of this project. These impacts include the presence of construction equipment, stockpiles of earth materials, temporary barriers, guardrail, detours and signs.

3.20.2 Construction Mitigation

Construction impacts would be mitigated through implementation of control measures during construction. These measures may include:

- ▶ Limit noise-generating construction activities per MDT's standard noise provision.



- ▶ Require the use of appropriate dust suppression measures to minimize particulate dust impacts associated with the construction activities.
- ▶ Require erosion control methods, such as temporary and permanent seeding and mulching, within a reasonable time after the soil is disrupted.
- ▶ Require sedimentation control methods, such as check dam, silt fences, and sedimentation basins along drainage routes and adjacent to sensitive areas.
- ▶ Require the contractor to implement an approved water quality control plan so that appropriate measures are in place in the event of an accidental spill.
- ▶ Develop construction staging and traffic control plans that reasonably minimize the disruption to traffic and access. The construction sequencing and traffic control plan must require that two-way travel be maintained as much as possible during construction. This can be accomplished by keeping two lanes open or by a short signalized alternating one lane sections. The plan must require that the Swan River bridge be constructed such that one lane of travel be provided at all times except for unavoidable closures. The plan must also require that the bridge be open as much as possible to two lane traffic during the summer tourist season (May thru mid-September). This can be encouraged through an incentive clause for this or by other innovative contracting methods. If, during construction, the route must be closed, minimize the closure through innovative contract methods, (Dis-incentive) and the provision of a detour route. If the closure has to be during the tourist season, the disincentive may be increased based on the current disincentive formula.
- ▶ Special provisions for demolition and construction of the bridge could dictate that boat traffic be shut down for cycles of short durations (approx. 45 min) so as not to drastically interrupt marina businesses.
- ▶ Provide adequate public notice and maintain coordination with area residents to keep the public informed of the construction progress and to warn of closures and detours using standard MDT public involvement practices.

3.21 Permits Required

Table 3-17 Permits Required		
Permits Required	Agency	Description
318 Authorization	Montana Dept of Environmental Quality (MDEQ)	This authorization must be obtained for construction activities that may cause unavoidable short-term violations of state surface water quality standards for turbidity, total dissolved solids, or temperature.
Stream Protection Act (SPA 124)	Montana Dept of Fish, Wildlife & Parks (MDFWP)	This permit must be obtained for any project that may affect the natural existing shape and form of any stream or it's banks or tributaries
Section 404 Permit (Federal Clean Water Act)	US Army Corps of Engineers (COE)	The proposed project will require a 404 Permit under the provisions of the Clean Water Act (33 USC 1251-1376 & 33CFR 330.)
Storm Water Discharge General Permit (MPDES Permit)	Montana Dept of Environmental Quality (MDEQ)	This permit is required for construction activity that would disturb greater than .4 hectare (1 acre). A Storm Water Pollution Prevention Plan (SWPPP) will be developed for the project.



3.22 Secondary & Cumulative Impacts

3.22.1 Definition of Secondary and Cumulative Impacts

The secondary, or indirect, analysis addresses potential changes in land use including factors that relate to, or affect, land use (increases in tourism, population, traffic, bicyclists, pedestrians, businesses, and other factors). The analysis focuses on the effect of the proposed action in relation to land use.

The analysis of cumulative impacts considers environmental impacts of all other developments, both public and private, that exist, have been recently completed, or are proposed. Proposed projects are those projects that are reasonably foreseeable including those that are approved or permitted for construction. The incremental impacts contributed by the proposed action within the study area are then added to those of the other developments to create the cumulative impacts.

For the purposes of this analysis of secondary and cumulative impacts, a study area was created with a width of approximately 3.2 km (2 mi), centered along MT-35, and extending approximately 3.2 km (2 mi) beyond the north and south ends of the project.

3.22.2 Secondary Impacts

Current land use patterns around Flathead Lake indicate that the majority of the land surrounding the lake and adjacent to MT-35 is privately owned. The Flathead Indian Reservation covers the southern half of the lake. A large portion of the land to the east of the lake is designated as National Forest.

Most of the new development within the study area is residential. Based on the Flathead County 2000 Report: New Residential Construction, 21 residences (including single-family, duplex, and multi-family units) were constructed within the Bigfork Rural Sewer District in the year 2000. This report was part of a study conducted by Flathead County that showed a decrease from 1999 residential construction of 21% countywide. As of this time (during the writing of this document), there are no reasonably foreseeable land development projects.

Population density in the region is greatest in Kalispell, followed by Polson, and Bigfork. From 1980 to 1990, the population in Bigfork grew by 35%, Lake County grew by 58%, and Flathead County grew by 14%. From 1990 to 2000, population in Bigfork grew by an estimated 36%, Lake County grew by 26%, and Flathead County grew by 26%. Growth projections for 2000 to 2020 show Lake County increasing in population 36%, and an increase for Flathead County of 39% (US Census, Census and Economic Information Center, MT Department of Commerce).

Increasing growth and development may cause some potential impacts: higher traffic volumes; increased traffic generated noise and air pollution; and more humans and human-related activities. A general sustaining of the economy with normal growth is expected. The local economy is based to a large extent on tourism and related tourist activities such as: pedestrian and cyclist activities, sightseeing, and recreational activities utilizing Flathead Lake. Substantial growth generating factors, for example, a sizeable increase in the employment base or housing sector, are not predicted by current trends.

Normal growth and the expansion of developed land are likely to continue in the Bigfork region, regardless of the proposed transportation improvements to MT-35. The proposed action does not include capacity improvements to MT-35 (the addition of turning lanes is generally not considered to increase roadway capacity, rather they are an improvement to the safety of the facility). The transportation growth analysis did not predict a need for increased traffic carrying capacity beyond that provided by the improved two lane facility.



3.22.3 *Cumulative Impact Analysis*

Impacts to environmental resources are created when any action occurs that alters the natural landscape, independent of the funding source of the action. All developments, whether publicly or privately financed, contribute to overall environmental effects. The degree of environmental impacts depends on many interrelated factors, such as project specific considerations (including size and scope of the action), and other elements such as the presence and extent of environmental resources.

Developments in the Bigfork area generally have the most substantial environmental resources impacts in the areas of increasing the soil erosion and siltation potential, reducing wetland acreage, reducing wildlife habitat, altering the visual qualities of the landscape, and impacting threatened and endangered species.

The Preferred Alternative has varying degrees of impacts each of the typically affected environmental resources listed above. The impacts of the Preferred Alternative along with mitigative measures for each impact have been thoroughly considered in this chapter. The principles of Context Sensitive Design (CSD), such that the Preferred Alternative 1) Meets transportation needs; 2) Is an asset to the community; and 3) Is compatible with the natural and built environments, have been applied during the alternatives development process. The use of CSD assists in the creation of a Preferred Alternative with minimal potential environmental impacts.

3.22.4 *Secondary and/or Cumulative Impacts*

3.22.4.1 No-Action Alternative. The No-Action Alternative will not have secondary or cumulative impacts in the study area.

3.22.4.2 Preferred Alternative. There are no foreseeable secondary impacts as a result of the Preferred Alternative. While normal economic growth is expected, the region is not expected to experience growth impacts created by implementing the Preferred Alternative.

The incremental environmental impacts of this project, when added to past, present and reasonably foreseeable projects in the area are not expected to result in a significant cumulative impact. Given the current knowledge of the relationships necessary to make definitive findings about cumulative impacts, and the lack of planned, programmed, or reasonably foreseeable developments within the study area, it is unlikely that factors contributing to significant cumulative impacts exist. Proposed developments are subject to review by local authorities to ensure that new growth occurs within the parameters and in accordance with environmental regulations established for this area.

3.22.5 *Mitigation*

The mitigative measures for the impacts of the Preferred Alternative are listed within the various resources sections of this chapter. The Preferred Alternative will not result in significant incremental impacts, cumulative or secondary; therefore, no mitigative measures have been identified.

Any impacts directly associated with the project will be subject to the mitigative measures set forth in this chapter. The impacts associated with future projects will be addressed through the permitting process established by the federal, state, and local authorities, where applicable.



Chapter Four: Public Involvement Comments & Coordination

4.1 Public & Agency Involvement Activities

An extensive public involvement process has occurred throughout all stages of the project. Figures 4-1a & 4-1b show the processes involved and meetings or activities conducted during the public involvement program.

4.1.1 *Public Involvement*

The public involvement coordination effort included meetings with various stakeholders such as citizens, property owners, businesses and local officials. The meetings were facilitated with a number of communication methods, for example: telecommunications, written communications, small group meetings, and public open-houses. The public involvement process has been an important part of the project from the beginning and will continue to be an integral part of the Preferred Alternative.

4.1.2 *Agency Coordination*

Agency coordination continues to be ongoing. Meetings were conducted with the planning and engineering departments of the jurisdictions along the MT-35 corridor. Agencies that have provided input to the design process include MDT, utility companies, water and sanitation districts, local planning organizations, etc. The following agencies have also been involved in the project coordination:

Bigfork Chamber of Commerce
Flathead Regional Development Office
Bigfork Land Use Advisory Committee
Bigfork Volunteer Fire Department
Bigfork Quick Response Unit
Flathead County Office of Emergency Services
Flathead County Sheriff Department
Montana Highway Patrol
Lake County Disaster & Emergency Service
Coordinator
Bigfork Public School District
Bigfork High School
Swan River School
Flathead Electric Co-op, Inc.
Northwest Disposal Service

Bigfork Water & Sewer
CenturyTel
Flathead County Commissioners
Lake County Commissioners
Lake County Planning Department
Bigfork Post Office
Montana Department of Transportation
Confederated Salish and Kootenai Tribes of the
Flathead Nation
Federal Highway Administration
Natural Resource Conservation Service
Montana Department of Fish, Wildlife and Parks
US Fish & Wildlife Service
US Army Corps of Engineers
State Historic Preservation Office

4.1.3 *Mailing List*

The project team maintains a Bigfork North & South project mailing list. As of September 2003, the list included approximately 500 names. The mailing list has been compiled in various ways: sign-in lists at the public meetings, concerned citizens who have written letters to project representatives, and those who have had phone contacts with the project staff.



Figure 4-1a Time Line

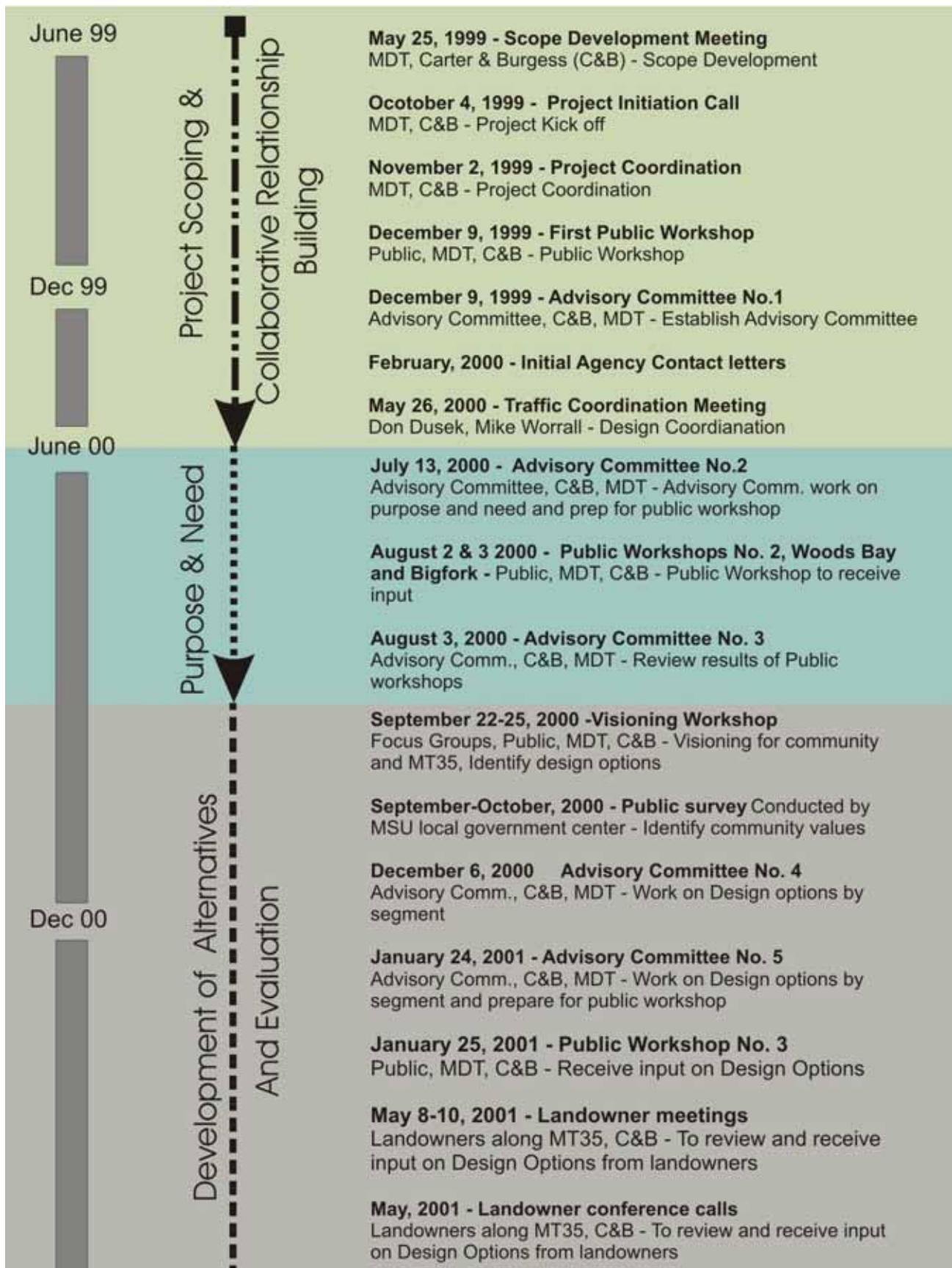
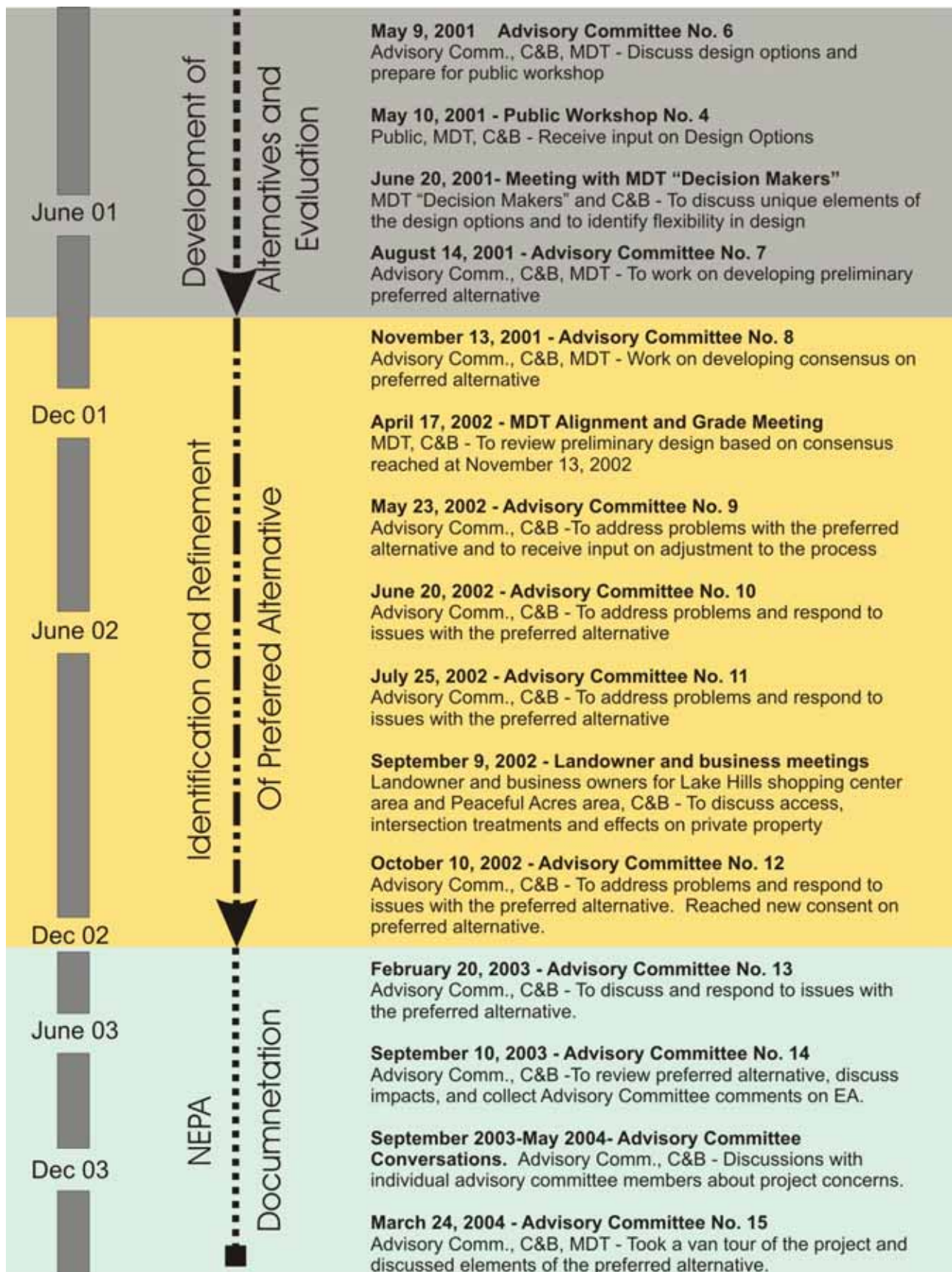




Figure 4-1b Time Line Cont.





4.1.4 *Meetings with Jurisdictions and Elected Officials.*

All meetings that were either held or attended to by the Project Team are listed in Figures 4-1a & 4-1b. Representatives of local jurisdictions, MDT and FHWA participated in the following meetings:

- ▶ Advisory Committee. Participants in the advisory committee included representatives of Flathead County Commission, Lake County Commission, Flathead Regional Development Office and Bigfork Land Use Advisory Committee.
- ▶ Visioning Workshop. The visioning workshop was a 4-day facilitated event. This included focus group meetings, which were comprised of stakeholders with similar interests in the project. The focus group meetings were held in several categories including: Business Focus Group (Businesses, Community leaders, Chamber of Commerce, etc.); Highway User Focus Group (schools, bus drivers, mail delivery, motor carriers); Highway Service Providers (law enforcement, emergency services, etc.)
- ▶ Individual meetings and phone conversations with MDT and FHWA have taken place throughout the entire process.

4.1.5 *Newsletters.*

To this point in the project, four newsletters have been created and mailed to those on the mailing list. The newsletters were sent in November 1999, July 2000, November 2000, and April 2001. The contents of each newsletter were:

- ▶ November 1999: Announced the public workshop which was held on December 9, 1999. This newsletter presented information about the study limits, project schedule, roadway deficiencies, traffic volumes and potential issues.
- ▶ July 2000: Announced the public workshops which were held on September 22-25, 2000. This newsletter presented information about the comments that were received during the previous public workshop and described project needs by segment.
- ▶ November 2000: Provided information on the visioning workshop held September 22-25, 2000. This newsletter also provided information on the condition of the Swan River bridge and discussed roundabouts.
- ▶ April 2001: Announced the Public Workshop which was held on May 10, 2001. It presented the design options, information about the options and intersection alternatives, etc.

4.1.6 *Additional Community Mailings*

The following mailings were sent out in addition to the newsletters:

- ▶ September 11, 2000: Community Visioning Workshop newsletter
- ▶ January 12, 2001: Postcard announcing upcoming public meeting
- ▶ April 27, 2001: Homeowners newsletter



4.1.7 Public Meetings.

Four open-house meetings were held to provide information to the public and to get their feedback on the project. Additionally a visioning workshop was conducted. The visioning workshop was a four day event held September 22-25, 2000.

The public workshops are described as follows:

- ▶ December 9, 1999 – Public Workshop #1, Marina Cay Hotel and Marina, Bigfork. Purpose – To perform project scoping, identify project issues, and identify persons to participate on the Advisory Committee.
- ▶ August 2 & 3, 2000 – Public Workshop #2, Mountain Lake Lodge, Woods Bay and Bigfork Elementary School, Bigfork. Purpose – To continue to receive input on project issues and the purpose and need.
- ▶ September 22-25, 2000 – Visioning Workshop, Masonic Lodge, Bigfork. This workshop was a four-day facilitated event held to identify community visions and receive input on development of design options. The workshop included focus group meetings, town meetings, project tours, design workshops, and a presentation of visioning results.
- ▶ January 25, 2001 – Public Workshop #3, Masonic Lodge, Bigfork. Purpose – To receive input on the development of design options by segment.
- ▶ May 10, 2001 – Public Workshop #4, Masonic Lodge, Bigfork. Purpose – To receive input in the design options and the evaluation of the design options by segment, presented analysis of options for the Swan River Bridge and intersection treatments.

4.1.8 Advisory Committee Meetings.

Fourteen Advisory Committee meetings were held to discuss project options and to reach consensus on project decisions. The meetings were held both in person and by conference call on the dates shown below.

- ▶ December 9, 1999 - Meeting: In this first advisory committee meeting the role of the advisory committee was defined and the project schedule reviewed. Committee project concerns and other items discussed included: extension of the project to Woods Bay, access management, safety improvements to Ice Box Canyon, a bike path separated from the highway, community maintenance of landscape amenities, discouragement of truck traffic, improved equestrian crossing, and the need to preserve the character of Bigfork while meeting safety and access goals.
- ▶ July 13, 2000 - Meeting: This meeting continued with discussions regarding the role of the Advisory Committee and how decisions are made. The project segments were discussed as were the elements of Purpose & Need.
- ▶ August 3, 2000 - Meeting: Discussion occurred about what kinds of questions would be asked on the upcoming surveys and what information would be learned from the surveys. The advisory committee requested information regarding bridge rehabilitation vs. replacement as well as requesting copies of MEPA and NEPA regulations and guidelines.
- ▶ December 6, 2000 - Meeting: The draft final survey report was distributed and future public involvement opportunities discussed. The advisory committee made suggestions on a power point presentation to be shown at the January public meeting.



- ▶ January 24, 2001 - Meeting: The purpose of this meeting was to prepare for the next public workshop, give suggestions on presentation and give input on the design options by segment.
- ▶ May 9, 2001 - Meeting: Reviewed the design options by segment, provided input and prepared for the public workshop on May 10, 2001. The input we received from landowner meetings was also discussed.
- ▶ August 14, 2001 - Meeting at Flathead Holding Company: Preliminary preferred alternative elements were reviewed and remaining decisions were discussed during this meeting.
- ▶ November 13, 2001 - Meeting at Flathead Lake Lodge: Presentation of the preferred alternative was the purpose of this meeting. The Advisory Committee reached consensus regarding a version of the Preferred Alternative.
- ▶ May 23, 2002 - Meeting at Flathead Holding Company: Numerous issues were raised with the Preferred Alternative at this meeting. Items included lengthening of the median at Woods Bay, lowering the cross slope on the steep curve near Woods Bay Market, Grand Avenue intersection approved as presented, two roundabouts were accepted, north entry location was acceptable, path width was determined to be 2.4 m (8 ft) between Woods Bay and Bridge Street, and 2.4 m (8 ft) from Grand Avenue to Ice Box Canyon. Finally, it was agreed that the bridge treatment should have an aesthetic look consistent with the area; plain concrete barriers are not acceptable. It was also agreed upon that more work was needed on the Preferred Alternative before completion of the environmental document.
- ▶ June 20, 2002 - Conference Call: The majority of this conference call revolved around discussion options for access in the Lake Hills shopping center area. It was decided to hold another conference call in July.
- ▶ July 25, 2002 - Conference Call: A consensus was reached regarding the following items: entry treatments will be lighted, pullouts would be placed between mileposts 28 and 29 (later deleted), placement of the bike path on the west side of the highway, use of a berm attenuator in Ice Box Canyon, and approval of the North and South Bigfork entry treatments.
- ▶ September 9, 2002 - Landowner Meeting: Two meetings were held, one with landowners in the Lake Hills shopping center area and one with landowners in the Peaceful Drive area, to discuss access management issues. This meeting provided input for the conference call on October 10, 2002.
- ▶ October 10, 2002 - Conference Call: Addressed numerous questions regarding intersections, entry treatments, passing lanes, accesses, equestrian crossing and non-motorized facilities. Consensus obtained on all elements of the Preferred Alternative.
- ▶ February 20, 2003 - Conference Call: This call forwarded the sketches of retaining walls at Swan River Bridge. Reviewed sketches of the retaining wall and arrived at consensus with this element of the Preferred Alternative.
- ▶ September 10, 2003 - Meeting: The purpose of the meeting was to discuss the preferred alternative and potential impacts.
- ▶ September 2003-May 2004 Individual Calls: The consultants and the advisory committee communicated with each other about concerns and the status of the project.



- March 24, 2004 - Meeting at Flathead Lake Lodge: The Advisory Committee, MDT, and consultants took a van tour of the project to discuss elements of the preferred alternative.

4.1.9 *Remaining Public Involvement*

Prior to the final approval of the Environmental Assessment (EA), a review meeting will be held with the Advisory Committee to discuss and resolve any final concerns. Following this meeting any approved changes to the EA will be made and the final draft of the document will be re-submitted to MDT for their final approval. After all of the necessary approvals are received, the EA will then be approved for distribution to the public.

A Notice of Availability of the EA and the planned date for the Public Hearing will be announced in the Bigfork Eagle at least fourteen days in advance of the Hearing. The EA will be made available for public viewing at several locations in the project area, which will be listed in the advertisement. The availability of the EA and an invitation to the public to attend the public hearing will also be included in a newsletter which will be available for distribution to the public at several locations throughout the project, mailed to those on the project mailing list, and will be distributed to all of the PO boxes in the project area by the Post Office.

At the Public Hearing, the general public will be given the opportunity to provide official comment on the project. Written comments, to be included as an official part of the record, will be accepted for 30 days following the Notice of Availability.

After receipt of all public and agency comments, the elements of the Preferred Alternative along with the basis for its selection, will be documented in a final decision document for the project.